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ORIGINAL LECTURES.

FACIAL PARALYSIS. PERIPHERAL EPILEPSY.

A Clinical Lecture,
Delivered at the Rush Medical College, Chicago, Ill.

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FACIAL PARALYSIS.

GENTLEMEN: Observe the difference between the eyes of this patient, one of which is shut closely, the other partly open. This indicates weakness of the orbicular muscle of the eye, which is innervated by the seventh nerve, so that there is disease in the seventh, or facial nerve, which is distributed to the side of the face.

As he smiles one side of his face is drawn up, while the other is motionless, and it is impossible for him to pucker up his lips—a movement which is effected by the action of the orbicularis oris muscle. As he cannot close the eyelids on account of lack of contractile power in the orbicularis palpebrarum, so in the mouth he cannot adjust the lips because the right half of the orbicularis oris is paralyzed. He is able, you notice, to blow out his cheeks. He says that in eating the food gets between the teeth and gums.

The patient informs us that in June last he fell from a second-story window some twenty feet upon a stone slab, breaking his wrist. Blood came from his ears, which indicates that rupture of the tympanic membrane had occurred. Whatever hemorrhage took place must have been due to rupture of the bloodvessels in the middle ear.

This history leads us to infer that the injury was to the nerve where it lies in the bony canal, and that, perhaps, there was fracture of the bone with consequent compression of the nerve trunk. If this were the case we should expect the chorda tympani to be involved.

His sense of taste is unimpaired on the left side, but on the right it is diminished. If in a case of this kind the sense of taste is preserved, we infer that the injury is outside of the point where the chorda tympani springs from the main trunk, and that the lesion is a peripheral one, involving one portion of the nerve, and leaving the other intact. Where the sense of taste is involved the lesion is nearer the brain than the origin of the chorda tympani nerve.

This patient perceives the taste of an acid applied to the right side of the tongue, so that the paralysis is not complete. There are some who believe that the glossopharyngeal nerve is the only nerve of taste, but this varies in different persons.

The structures of the inner ear are not destroyed. The probability is that the tympanum was ruptured, which was followed by thickening, so that the drum-head is no longer capable of taking up sound vibrations and communicating them from the ossicles of the ear to the internal structures.

What is the proper treatment for such a case? It is not an uncommon thing to find patients suffering with paralysis of the facial nerve consequent upon simple exposure to damp or cold, but such patients are predisposed to rheumatism and demand specific treatment. But it would be useless to treat this patient with salicylate of sodium, or with other remedies given for the purpose of curing rheumatism. You must recognize the fact that there is injury to the nerve within the bony canal through which the nerve passes from the base of the brain, and endeavor to remove the exudation that probably causes compression. It is possible that we may not succeed in doing this, for there may have been sufficient displacement of the walls of the bony canal to produce permanent compression analogous to what occurs in the spinal cord where there is caries of the vertebræ. You know how patients suffer from caries of the vertebræ. After a time the vertebræ collapse, an angular curvature of the spine is produced, and the cord is compressed at the point of curvature. The pressure is sufficient to cut off all functional power in the cord, and the lower part of the body is consequently permanently paralyzed. We have a similar condition of things in the case before us, and it is possible that we may never succeed in relieving the nerve from the pressure.

Mercury and the iodide of potassium are efficient for this purpose, and in this case I would advise doses of five grains of the iodide of potassium, and one-thirtieth of a grain of the bichloride of mercury. Let the patient make use of these remedies as long as symptoms of deafness or paralysis exist. Electricity should also be applied to the face. The faradic current should be used, not because it will cure the disease, but because it will keep the muscles of the face exercised. What we desire is to preserve the muscles from atrophy while we are endeavoring to relieve the nerve from pressure. This is the only line of treatment that can be used with any prospect of success in such a case.

EPILEPSY OF PERIPHERAL ORIGIN.

The next patient I present to you is a girl ten years of age. About a year age, while apparently perfectly well, she was seized with convulsions. The first attack came on about nine o'clock in the morning, the mother finding her lying on the floor. She bit her tongue, frothed at the mouth, and, her mother says, remained unconscious for half an hour or more. After recovering from the fit the patient continued in a more or less feverish condition the remainder of the day. This was doubtless a typical epileptic convulsion. The next day she had two convulsions, one immediately following the other.

It is important to ascertain, if possible, whether she had fever, or whether the pulse grew more rapid during

the attacks and remained so, because we must make a distinction between convulsions that are epileptic in their character, recurring rapidly one after another, and constituting what is technically known as the *status epilepticus*, in which there is a rise of temperature, and those cases where we have simply a succession of eclamptic fits unattended by any febrile movement. The former is much more dangerous to the patient.

The mother did not bring the child here wholly on account of the epileptic convulsions, and we learn that there are other interesting points in connection with the case furnished us by her physician.

The child, you remember, is ten years of age, and you observe that she presents a maturity beyond her years. The mother informs us that in her family the occurrence of puberty is earlier than in the majority of families. Usually menstruation does not develop before the twelfth or fifteenth year, but from the appearance and development of this girl, I should say the commencement of menstruation was not far distant. Again, her physician has made a vaginal examination, and has discovered an ulcerated condition of the cervix uteri. This seems almost incredible in a child of her age, but is, of course, possible, and does sometimes occur.

We do not know positively the cause of these convulsions, but the probability is that they are due to the ulcerated cervix. It must not be forgotten that in some of these cases we have hysterical epileptiform paroxysms, or there may be a combination of the two disorders in a delicate and exceedingly nervous organization, producing all the convulsive manifestations common to *hystero-epilepsy*. But in epilepsy we have certain marked symptoms which enable us to discriminate between it and true hysteria. *True* hysteria is very rarely accompanied by unconsciousness. In a complete hysterical convulsion the patient preserves a certain amount of consciousness; in fact, she knows under what circumstances the convulsion is to take place, and, therefore, guards herself against a fall when the fit comes on. Again, the tongue and lips are not bitten. There are some physicians, however, who claim that this latter may occur, but I should want strong confirmatory evidence to make me believe that a patient bites her tongue and becomes entirely unconscious in a true hysterical convulsion. Hysteria manifests itself in the day-time, during the hours when the nervous system is exposed to excitation; in other words, it belongs to the waking period. The convulsions do not occur during sleep. This patient has convulsions in the night and while asleep, which is characteristic of true epilepsy.

Whatever may be said as to the general condition of her nervous system, its excitability, perhaps its hysterical predisposition, I think we have in this case an element of true epilepsy governing and controlling the manifestations. If that be the case, where is the source of irritation that excites the convulsions? This is not a case of congenital epilepsy, for, according to the statements of the mother, it is only a year ago since the convulsions first manifested themselves. Having, as we are told, an ulcerated condition of the cervix uteri, the probability is that *there* was the starting-point of the irritations which were communicated to the brain centres and brought about the convulsive movements. We may call this a case of *peripheral epilepsy*.

The treatment should, of course, be directed principally to the peripheral organ, and the ulcerated condition of the cervix must be remedied before we can hope to relieve the convulsions. It is highly probable that the occurrence of menstruation and the periodical relief that is obtained through that function will help to relieve the patient of the seizures. She must be cured of all swelling, inflammation, and ulceration about the cervix. In addition, the ordinary treatment of central nervous diseases must be resorted to, which I have detailed in previous lectures.

CARTWRIGHT LECTURES.

Delivered before the Association of the Alumni of the College of Physicians and Surgeons, New York, November 22, 1889.

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LECTURE III.

ON VITAL AND MEDICAL STATISTICS.

THOSE of you who are familiar with the history of medicine in the early part of this century will remember the great anticipations which were formed and expressed by prominent physicians as to the results which might be expected from what was called the system of statistical medicine introduced in the Paris school by Louis and his contemporaries. This was not exactly a new system, but rather an attempt to methodize an old one—*i. e.*, to present the experience of different physicians in such a way that comparisons might be accurately made and the results mathematically expressed.

In this so-called numerical method all the details of each case observed are to be noted, as far as possible, without any special regard to whether these details may appear to the observer to have any special connection with the course of the case or its termination, or not. When a number of such cases have been collected, they are to be compared in all their details, showing in round numbers how many present such and such particular circumstances, and how many do not.

In order to make a useful application of this method, it is, of course, necessary that the different observers shall be describing substantially the same thing; that is to say, the disease to be observed must present a definite series of symptoms, so that a person properly qualified will recognize its existence without any liability to error. It should also be a disease which follows a tolerably regular and definite course, having a commencement which can be recognized. Such forms of disease include the so-called specific diseases and acute affections of particular organs. The method is most applicable to surgical cases of all kinds, including those which come under the domain of the various specialties.

As regards details of pathological anatomy, it has been pointed out by Dr. Flint that the statistical method can only apply to those changes which can be appreciated by the senses after death, and that, there being but one constant lesion found in typhoid fever, viz., the softening of Peyer's patches in the small intestine, the statistical method gives us little assistance in the investigation of the pathological condition of this disease.

We may note, however, that if it be admitted that typhoid fever is due to a specific bacillus, as seems now

to have been fairly demonstrated, and that this bacillus has been discovered and verified mainly by the application of experimental methods, it is, nevertheless, true that the results thus obtained have met with a general and prompt acceptance, mainly because the application of statistical methods to the circumstances of outbreaks of this disease in different communities is in perfect accord with the bacillus theory of its causation.

This merely illustrates the general law that the experimental and the statistical methods must be used together, and that their results must be in accord to produce full confidence in the results obtained by either alone.

The sanguine advocates of the numerical system of Louis supposed that all that was necessary to discover all the laws with regard to the propagation of any disease, and the true value of any or of all methods of treatment proposed for that disease, was simply the collection by different observers of all the data which could be obtained from individual cases, and the tabulation of these, according to a certain fixed and almost mechanical system of permutations and combinations, by means of which the various symptoms are brought together in groups, in connection with the results observed, and that thus would be obtained a true scientific basis, or, as they commonly phrased it, "the science of medicine."

We can now see plainly enough that this is, from the nature of the case, impossible; that the data obtained by different men can hardly ever be made fully comparable; and that, however complete they may be, the number of factors which combine to produce such a result as the production of a particular form of disease in a healthy organism is so great that, from mere statistics of observation, we can never obtain any scientific knowledge as to the relative part which each factor has taken in producing the result. This can only be done by experimental methods, in which the influence of one particular factor can be applied and those of others eliminated as far as possible; and the great advances which have been made toward obtaining a scientific basis for practical medicine within the last twenty-five years are, in the main, due to the experimental method. So soon, however, as we have, by the investigation of particular cases and by experiments, obtained a more or less probable theory as to the cause and mode of diffusion of a particular form of disease, the outbreaks of that disease in a community afford an invaluable means, in many cases, of testing the truth or falsity of the theory.

It must be admitted that the probabilities of error are much greater in medical than in vital statistics, and this for a number of reasons. The first is, that no two observers examine or interpret a disease in precisely the same way, and hence it is extremely difficult to collect a mass of observations sufficiently large to form a basis for statistical reasoning. Those who wish to be scientifically accurate in the use of such material, are usually compelled to deal with a very limited number of observations, because they cannot obtain a large number upon which they can fully rely.

The best data are, for the most part, those which lie in the field of surgical observation, since here the symptoms observed, the methods of relief applied, and the results obtained, are tolerably definite, and there is not likely to be much difference in the methods of recording them.

The methods of medical statistics differ fundamentally from those used by the vital statistician in that they usually have no relation to the phenomena observed in the normal, healthy, living population. The physician inquires, out of a thousand cases of children or of old persons that have been treated, how many times this particular disease has been met with; or, in a given number of cases of this disease, what proportion have died. This method is, in fact, practically the only one which is available to the physician; but the vital statistician, if dealing with disease, will want to know the probabilities that a male between twenty and thirty years of age will contract a given disease, such as phthisis or typhoid fever; and for this purpose he wishes to know the whole number of cases observed in a given population, and the number of the population furnishing those cases, in order to establish the ratio.

Bertillon illustrates this in his comment that the small number of deaths of old men attributed to typhoid fever might lead the physician, from his point of view, to say that typhoid fever in old age is a rare disease; but the vital statistician might conclude that the rarity of the disease in old age was simply due to the small number of those living at that period.

In discussing the tabulation of the returns of cases of acute rheumatism, in the *Collective Investigation Record*, Dr. Whipham gives the number of cases in each occupation out of 655 cases recorded. Of these, 71 were domestic servants, 16 agricultural laborers, 13 farmers, 10 grocers, etc. He comments that the number of domestic servants (71) is a remarkable occurrence, and proceeds to account for it by the consumption of alcoholic drinks, etc.

It is evident, however, that absolutely no conclusions can be drawn from these figures, since there is no definite proportion between the number of domestic servants attended by the physicans who made the reports and the number of domestic servants in existence, nor is there any relation between any of these figures and the number of domestic servants attacked by rheumatism. The only way in which this factor could be brought in in such statistics would be with reference to frequency and character of complication, or to relative fatality of the attacks in comparison with other occupations.

The fact that in each case of sickness there are many different circumstances which combine to produce the result is not, as Louis remarks, a valid objection to the use of statistical methods for the purpose of estimating the influence and relative importance of each of these influences; it is rather an argument in favor of their employment. Counting is better than guessing, and when it gives contradictory results as applied to two groups of cases, it indicates that some circumstances have not been taken into sufficient account, and that further inquiry is necessary. In the body of the sick man, as in the test tube, like causes under like circumstances will produce like effects.

Admitting that the chances of error in medical statistics are very much greater than in those relating to vital statistics, it does not follow that they have no value. It simply increases the desirability of collecting a large number of facts before proceeding to draw any definite deductions.

In statistics in regard to therapeutics we have to take account of the various influences which the condition of

the organism exerts upon the results, before we can fairly estimate the action of the new and special influence which has been introducted in the shape of an action of a drug or a particular mode of treatment. In any event, such statistics, even when derived from a small number of cases, serve to indicate lines of investigation, and to ask questions, if they do not answer them.

The greater part of our pathology and therapeutics has not been derived from statistical observation. Whenever a necessary and logical connection between a particular cause and the resulting phenomena has been established, statistics are of little or no value in demonstrating the connection. In every case the result must follow the cause, as it does in a chemical experiment, and a few repetitions of such experiments give as great a degree of certainty as a thousand or more.

The chances of the occurrence of a certain event in relation to cause can only be mathematically calculated when the totality of the possible causes of the result remains the same under the different circumstances investigated. This is one of the chief reasons for the impossibility of drawing positive conclusions from medical statistics, properly so called.

The consequent condition is one that I have already mentioned, viz., the application of the law to large numbers and the consideration of the limits of positive error.

The services rendered by statistics to medical science are by no means so great as was hoped by those who first proposed the application of this method; partly from the nature of the case, partly from the wrong application of statistical methods to groups of cases to which they are in nowise applicable. What result, in fact, can we expect from statistics applied, for example, to a number of cases of fever before the distinction between typhus, enteric, and relapsing fevers was understood.

"The results of medical statistics will not apply to the treatment of any particular case. They can never prove that bloodletting should be employed in all cases of pneumonia, or that it should never be applied in any case of pneumonia. Even the results obtained from the most satisfactory medical statistics will only be found useful to the physician in directing his treatment, in the absence of any special indication in the particular case which he has before him."

The data upon which to base medical statistics must be obtained either from published records, from unpublished memoranda collected by means of correspondence or by the so-called collective investigation methods, or from personal experience. The published data include such records of private practice as are given in journals, transactions, monographs, etc., records and statistics of hospitals, statistics of public medical services, and of medical and life insurance societies.

In many respects the crude data, in the form of records of individual cases, are the most reliable, but the labor of collecting and combining them is great, and we desire, therefore, to use the statistical tables prepared by previous workers, as far as they are available, for the particular inquiries which we have on hand.

Detailed reports of cases, such as are suitable for use in statistical work, are not over-plentiful. In the majority of cases the individual data are not given. We have only summary statements of tables of results. This is the case with regard to much the larger part of the great mass of reports of results of hospital and asylum practice, either in the form of separate annual reports or in summaries for journals or societies. These reports give some information as to the prevalence of certain diseases in certain places at certain periods of time, and in this way have some historical value; but they do not show the proportion of cases of disease or death to the living population in which these occur, and very few of them give the data by sex and age in the manner required by the statistician. Some of these calculate death-rates with reference to the total number admitted during the year; others, to the total number treated, which includes those remaining on hand at the beginning and those admitted during the year; and others, to the total number disposed of during the year by discharge, transfer, or death. A few of them give the average daily number under treatment during the year, and the average number of days' treatment for each case, sometimes making a distinction of sex, but almost never of race or age.

Comparison of gross death-rates of different hospitals, however calculated, are of little value for the purpose of determining either the sanitary condition of the place, the skill of the medical staff, or the merits of the particular system of treatment, owing to the great variations in the class of patients admitted. Of course, the statistics of hospitals for special classes of diseases can only be compared with those of the same kind; and even for general hospitals, the fact that the gross death-rate of one is higher than that of another, proves very little.

In a paper by Dr. Guy on the rate of mortality prevailing in the general hospitals of London, he compares the death-rates of King's College Hospital, with which he was connected, for the first five years of its existence —1840 to 1844—with the five years from 1857 to 1861. During the first period it was an old building, in a bad locality, and greatly crowded, and without any reputation as a hospital or as a medical school. During the last five years it was in a new building with excellent sanitary arrangements, and with an excellent reputation. He calculated the death-rates on the number of admissions to the hospital. The rate for the first five years was 8.4 per cent.; during the last five years it was 10.85 per cent. He concludes that a higher rate of mortality may be due to causes very different to sanitary defects in the building and want of skill in the medical staff; and that in a large city, in the case of a hospital enjoying similar sanitary advantages, the rate of mortality is mainly determined by the reputation of its hospital staff among the public at large and among its own pupils, which reputation influences the proportion of grave and dangerous cases which are sent to it.

In comparing hospital death-rates, it is now generally agreed that it is best to make use of the death-rates in relation to the total number of persons disposed of by discharge, transfer, and death for a series of years. Comparison of the number of deaths with the admissions only is apt to give very misleading results. A better method than this is that of Bertillon, who adds to the number at the beginning of the year one-half of the sum of those admitted and of those going out. It is also desirable to know the ratio of deaths and discharges to the mean population of the hospital, which is obtained by dividing the number of days of treatment by 365; but in this connection it is to be remembered that when

the mortality is calculated with relation to the number of days' sojourn in the hospital, those physicians who keep their patients the longest will show the lowest death-rates.

In his prize essay on *Hospital Statistics*, Dr. Steele substantially agrees with the remarks of Dr. Guy above referred to, and says that the hospital which confers the greatest benefit upon the community is that having the highest death-rate, as it is the one which admits the most critical and incurable affections. As the population of a city increases, the demand for hospital accommodation also increases, and unless more of this is provided, the tendency is to select the more serious cases for admission, and thus to procure an increased mortality rate.

I cannot assent to the proposition that a high mortality is any proof of the utility of a hospital, or of the skill of its staff; but it is certainly not a proof of the contrary.

"In all large hospitals from one-half to three-fourths of the deaths in the surgical department are due to accidents. The ordinary death-rate of surgical cases ranges from 5 to 7 per cent. If the deaths from accidents be deducted from the total deaths in surgical cases, there will be but a small percentage left. The mortality of the non-accident cases averages from 4 to 5 per cent. But the fame of the hospital, the reputation of its staff, especially for difficult and hazardous operations, may tend to increase the ordinary death-rate."

An increased mortality in the surgical ward may be due to special provision for permanent residence of patients with incurable diseases, such as the establishment of a ward for cancer cases.

There have been a number of reports and discussions in statistical congresses and societies with regard to the best forms to be used in publishing hospital statistics. The following are the *desiderata* for hospital statistics as given by Miss Nightingale:

1. Remaining in hospital on the first day of the year.
2. Admitted during the year.
3. Recovered or relieved during the year.
4. Discharged incurable, unrelieved, for irregularities, or at their own request.
5. Died during the year.
6. Remaining in hospital on the last day of the year.
7. Mean duration of cases in days and fractions of a day.

In each of these headings the data are given for each disease, for each sex, and for each of a number of groups of ages; the primary object being to ascertain the total sick population—that is, the number of beds constantly occupied during the year for each disease and each age and sex; 2d, the number of cases of each disease for each age and sex submitted to treatment; 3d, the average duration of each disease for each age and sex; 4th, the mortality of each disease for each age and sex; and, 5th, the proportion of recoveries for the same.[1]

Prior to the discovery and employment of antiseptic methods in obstetrics the records of lying-in hospitals were very unsatisfactory. It is true that we have no very definite standard of death-rates in childbearing in private practice with which to compare them, but this rate is given by the Registrar-General of England as being at the rate of five per thousand children born alive for the 28 years, 1847 to 1874.

The summary of the returns of the extern maternities in connection with Guy's, Bartholomew's, and St. Thomas's Hospitals for the 21 years, 1856 to 1876, comprising an aggregate of 74,580 cases, gives a mortality of 4.1 per 1000.

The largest lying-in hospital and the oldest is that known as the Rotunda, or Dublin Lying-in Hospital. In 198,481 cases of confinement in that hospital, the death-rate was 13.2 per 1000.[1]

It is not an easy matter to determine what may be called the normal or average mortality of women in chilbirth in order to determine the probable utility of a particular mode of managing cases of labor, as, for example, the so-called aseptic method. From the mortality statistics of the late U. S. Census (Report on Mortality and Vital Statistics, Pt. II., lxx.) we find that in 1,577,173 births 5646 deaths of the women are reported, being in the proportion of 3.57 per thousand births. This proportion was higher in the rural districts than in the large cities, and in negroes than in whites.

For the same year (1880) the Registrar-General of England reports the death-rate of women in relation to births as 2.07 per thousand. If, now, we compare these figures with those given by obstetricians and physicians, we shall find that the latter give death-rates from two to four times as great. Thus, Duncan gives the death-rate in private practice as from 8 to 10 per 1000 births, while Le Fort gives the figures from maternity hospitals as 30,594 deaths in 888,312 births, or over 34 per 1000; while Ehlers, using the statistics of Prussia from 1816 to 1886, gives the rate as from 5.8 to 9.4 per 1000.

How are we to explain these differences? Is the reported great mortality in rural districts, in certain races, or in physicians' reports due to peculiarity in the cases reported, or to the surroundings, or to the method of making reports and collecting data? Evidently the latter is first to be considered. In the data furnished by the Census and the English registration reports, the cases attended only by midwives and "wise-women" are included as well as those attended by physicians, and it is among the negroes and the Germans that the proportion of cases thus attended is the greatest. Moreover, in the cities where there is a regular registration of deaths upon physicians' certificates there is less tendency to give the vague term of childbirth as the cause of death than in the rural districts where the cause of death is returned by non-professional persons; but this does not apply to England, and it is not probable that it greatly influences the results in this country.

The deaths reported in the census as due to childbirth are those which occur during or soon after labor, including those due to hemorrhage, exhaustion, acute uræmia, etc., while those which occur at a later period may be reported as due to peritonitis, septicæmia, etc., although the physician in reporting the results of his private practice would include all these as deaths due to labor.

While the physician will usually consider only the relation between the number of cases of labor and the number of deaths in childbirth, the vital statistician will

[1] See paper on Hospital Statistics and Hospital Plans, by Florence Nightingale: Transactions of the National Association for the Promotion of Social Science, 1861, p. 554.

[1] Summarized from Dublin Medical Journal, 1869, and from Dr. Johnston's Annual Reports from 1868 to 1875.

study the relations of deaths in childbirth to the number of women living between the ages of 15 and 50 years, or to the total number of deaths from all causes. The figures of the last U. S. Census show that of every 100,000 women between the ages of 15 and 50 living in our large cities 16.21 died in childbirth during the year, while in the rural districts the corresponding figure is 51.56.

If, then, we are to judge as to whether the death-rate in childbed in the practice of a particular physician is to be considered as high or low, we must first know whether the figures relate to hospital or to private practice, and, if the latter, whether it was in the city or in the rural districts. To obtain some standards for comparison, we may use the numerous reports found in medical literature, in which physicians have given the statistics of their private obstetrical practice, and compare the results with those given in the statistics of maternity hospitals.

For prisons and asylums the death-rates should be given for the average daily population in the institution, and not for the number of admissions or for the number of cases disposed of; but in these cases gross death-rates for the whole population are of very little use. It is necessary to have them with distinction of sex and age, in order to make comparisons with the death-rates of the general population coming under the same groups.

(To be concluded.)

ORIGINAL ARTICLES.

THE CAUSES AND TREATMENT OF INFLUENZA.

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Influenza considered from the historical standpoint.—The reappearance of influenza in one of its cyclic manifestations, or epidemics, is an interesting event. With the improved methods of study and determination of bacteria, its character of the development will now be arrived at with some certainty. Already the study is bearing fruit, and the pathogenic organism has been announced again as it was many years ago. All the facts in the behavior of successive epidemics can be accounted for on this hypothesis only: that some microörganism is the real *materies morbi;* and as no theory can be true that omits facts that are essential, and as it is not theoretical discussion I purpose entering on, I content myself with saying that there is every reason for the belief that some microörganism or its ova is deposited on the mucous membrane of the nares, bronchial surfaces, and fauces, which, proceeding on its course of development, induces a local irritation and systemic poisoning attended by the complexus of symptoms known as influenza. It is necessary, however, before we can finally accept an organism as the genuine one, that proper cultures be made

There are many singular points in the history of influenza epidemics which may be used here merely to illustrate the nature of the malady and its cause:

In the first place, as to the manifestations of the disease in history. Four centuries have certainly witnessed true epidemics, and the periods of recurrence have shown that a real plan has been followed; but there have also been numerous apparent visitations of the epidemic activity which can only be explained on the hypothesis of a minute organism.

There are, it is clear, two great periods of wide diffusion of the *materies morbi*—one in which the maximum length of the interval between the rise and spread of the influenza is from forty to fifty years, and the other from fifteen to twenty years. As, however, there are many minor epidemics, it must be explained how these are accounted for on the principle that a living organism—a microbe—is the morbific agent. The minor epidemics of variable periods are restricted to certain localities where the conditions of soil and climate, or other special influences, favor the stay of microörganisms—their reproductive activity and their action on the mucous membrane; but in these instances they do not develop, in the course of their physiological growth, sufficient momentum to spread beyond the parts to which they are restricted. Another restraining influence is the limitation of those local climatic peculiarities which have been the efficient cause of those favoring influences to be hereafter described.

It is quite evident that certain climatic conditions have existed in the areas of diffusion occupied by the microbe, as there are cycles of time connected with the changes in the "sun-spots." Herschel pointed out long ago that these cycles of sun-spots occupied periods of time of eleven years and seventeen years, which a common multiple will bring into harmonious relations with the periodical activity of the epidemic power or influence, and whatever climatic characteristics must exist to secure the necessary power of diffusion to the microbe or poisonous material, this power must be general or universal in our atmosphere to satisfy one principle—that is, the principle of universality—for no restrictions in the atmospheric areas exist as against the appearance of influenza.

The one great fact of the epidemic influence is its *universality*. The great epidemics have prevailed in all climatic areas from the equator to the poles, through isothermal, isotheral, and isoclinal lines, and the special peculiarity of these divisions, of the temperature lines, which would otherwise be considered accidental, is the extent of humidity, of rainfalls and fogs, and of those peculiarities of soil and climate set up by them. As respects the climatic changes, they must be such as have connection with great periodical disturbances in the great source of changes in temperature—the sun with its photosphere and magnetic storms.

It has often been remarked that the direction of prevailing winds may be wholly against the general direction taken by the microörganism in its diffu-

sion. This phase of an epidemic presents no difficulties, now that it is proved that the direction taken by the higher currents in our atmosphere may be pretty generally opposed to those of the air strata in which we live. The Eiffel tower has had a meteorological station on its highest point, and even at this point it has been ascertained that the prevailing wind is in the opposite direction to that on the earth's surface. The diffusion of a pathogenic microbe, the conditions below being favorable, may take place from a higher portion than it were otherwise possible to do and thus wide distribution be attained. As damp and foggy weather is the only variation in the usual course of things climatic in character, that seems to be a necessary condition to the development of the disease, we may assume that the diffusion of the germs is probably facilitated by this state of the atmosphere.

As regards individual susceptibility or insusceptibility, the only known conditions besides those above mentioned that appear to influence the attacks of influenza are infantile life and sex. An infant is, clearly, less liable to have attacks, and delicate women more susceptible than males. There is no difference due to condition of life, and those insanitary surroundings that increase the tendency to seizures of infectious diseases do not appear to have any influence over the progress of influenza.

It is conceded by Hirsch and Lombard[1] that the various epidemics have quite uniformly had the characteristic qualities exhibited in the above outline. That the pathogenic material exists in the form of a microörganism must be considered as the only true explanation of the nature of influenza, as studied from the historical standpoint. Not less, also, must it be the conclusion when the question is to be answered from the pathological standpoint.

Pathology and morbid anatomy.—In respect to its pathology, we find that epidemic influenza is allied to the recurring catarrh known as hay-fever, at one end of a series, and to diphtheria at the other end. In respect to the severity of the morbid complexus, the relationship with diphtheria is more intimate.

The changes in the tissue are in the same order as those attendant on an acute catarrh caused by such local irritants as the powder of ipecacuanha, the odors derived from certain flowers, and the pollen of grasses, giving rise to hay-fever as the hyperæmia and catarrhal process of those points of mucous membrane where the *materies morbi*—a microbe or poisonous matter produced by a microörganism is lodged. When such an organism or its spores come in contact with the mucous membrane, it begins its development—living and growing, and reproducing its own kind. As the mucosa is the soil from which it extracts its own nutriment, so to this soil it returns the product of its own physiological activity. The question whether a given germ itself caused any morbid complexus has been asserted and denied, but the weight of authority is unquestionably in favor of the view that ascribes the symptoms resulting from the action of germs to some product of their own growth. Numerous examples may be given, but a few of the more important must suffice. Thus in infectious diseases, a poison produced by a peculiar microbe is formed from the mucosa where it is deposited. It is held, for the most part, that the poison is a chemical one; that local ulcerations may be formed partly by this substance, and systemic action is caused when the poison enters or diffuses into the blood. The maladies caused in this way are typhoid fever, the eruptive fevers, and some others.

As respects the severity of the consequences which result from the action of specific microbes, there are various differences between the several forms both in the local and systemic actions. Thus in the case of Eberth's typhoid bacillus the local action is severe and the systemic also; but in the case of the germ of influenza the local action is far less important than the systemic disturbance.

The mucous membrane may be attacked at any point where the access of air is secured by the anatomical arrangements—the nasal, faucial, bronchial, and Eustachian tube tracts of mucous membrane and the intestinal canal. Here are to be seen the various stages in the process of mucous inflammation, according to the time of original contact—the dry stage of congestion, followed by increased secretion, first of serum and leucocytes, and, third, the addition to the second of the ordinary purulent materials. According to the severity of the disease is the extent of the mucosa affected. In the severer cases we find, besides the same changes of the mucous membrane, capillary bronchitis, catarrhal and croupous pneumonia, the products of the catarrhal process containing some peculiar opaque masses. Although catarrhal and croupous pneumonia are said to be "complications" they should be regarded as occasional conditions, and when present are, properly speaking, constituted parts of the malady. Whatever peculiar appearances in the products of the inflammation may be seen, are no doubt due to some form of the parasitic growth. The chief importance of croupous and catarrhal pneumonia is that the development of these, out of an existing catarrh of the bronchi, is frequently a cause of death.

Similar lesions are found in the œsophagus and stomach, and rather rarely are the intestines reached, whence it may be concluded that the parasites deposited on the mucous membrane of the mouth

[1] Traité de Climatologie, tome iv. p. 400.

are swallowed with food and drink, and thus come into contact with the mucous surfaces below.

The changes effected by the action of the morbific matter on diffusing into the blood have not been studied, and, also, the effects upon the circulating organs and the lesions of the nerve centres remain as yet unexplained. That the ptomaine formed by the development of the microbe exerts an influence on those organs upon which it seems to have a selective action can hardly be doubted; but until the special form of the microörganism has been determined the nerve pathology must continue obscure.

The symptom-complex of influenza.—This malady has the general character of an acute mycosis, has a local action on the point of deposit, forms a chemical ptomaine, and by the absorption of this the systemic affection results. It follows, therefore, that two kinds of symptoms result: local symptoms and systemic symptoms.

Influenza comes suddenly; goes as quickly. The least robust, at any age, and women seem to be the first victims. It is here a question of bodily condition, not of the sex. The large numbers simultaneously attacked attracts general attention, and thus those most impressionable are seized, the onset being facilitated by any depressing emotion like fear or illness. There is no rigor, properly to be thus designated, but rather a series of light chills and a feeling of heat therewith. Sometimes *malaise* of a general kind is experienced, but, like the attack itself, is short in duration—lasting but a few hours. When the air loaded with the microörganisms reaches a given population, down upon all human creatures fall these bodies, and by the air they are carried into all the recesses and crevices of the naso-pulmonary mucous membrane. This being a soil favorable for their growth and multiplication, these processes begin, and immediately a poison is formed and diffuses itself into the blood. Some local action is exerted by the poison, of a chemical nature, probably; but for the most part the production of this material necessitates the action of the germ on the parts where it is living and growing. Hence it is that a morbid state of these parts is induced.

With some bad feeling, not developed immediately, however, there are heat and burning of the nose and fauces, tickling with heat of the Eustachian tube, and a similar sensation in the tear duct. The eyes feel hot, the lids swell, and tears begin to flow. The most unpleasant of these sensations is a stuffing of the upper parts of the nares and even in the frontal sinuses.

With the first access of the nasal and faucial irritation comes the chilliness, which is followed by some feverishness, with more pronounced *malaise*, and, in general, the headache, weakness, and soreness of the members, especially of the larger joints. With the progress of the case in some epidemics there is considerable general weakness, even marked depression, of the vital powers. The pulse becomes small and weak, the mind gloomy, and restlessness ensues. There is little disposition to exertion at any time, and mental hebetude coincides with physical depression. The indisposition to exertion is a conservative state, in so far as quiet is necessary, owing to the enfeeblement of the cardiac ganglia and the centres of the respiratory and cardiac systems.

When a fatal termination is to occur, as a rule, an extension downward into the trachea and bronchi takes place. The cough in all cases has, at the outset, a brassy, rough, or ringing character; it is not paroxysmal; it is frequent, almost incessant, as is the tickling of the throat, the tickling of the nares, and the itching and tickling of the middle ear. With the downward spread of the disease a good deal of mucus is expectorated, at first grayish, tough, and gelatinous, becoming afterward merely purulent and watery, and rather rarely, brownish-gray, with crystalline masses mixed in. Rather rarely, however, casts of the lesser bronchi and bronchioles are brought up, after most prolonged and distressing coughing, and such an access is followed by feebleness and by extreme weakness. In fatal cases, as a rule, the phenomena of catarrhal pneumonia and of croupous pneumonia supervene; but, as they offer no special differences in their symptoms and course, they do not require further consideration here.

Course and duration.—The rapidity with which the disease supervenes—its preliminary development being hours, and its whole career but a matter of three or four days, is remarkable. It must be remembered, however, that those already suffering with an acute cataarh are apt to have the epidemic seizure fastened on it, or that the true influenza may excite, especially in those with a phthisical tendency, a catarrhal process, which, in the ordinary form, may continue. The variations in severity in the local symptoms, in the character of the cough, in the expectoration, are considerable in ordinary cases, and in those of mixed character cannot be reduced to fixed rules, especially in the phthisical and in those with disordered nervous systems.

As respects the heart and circulation, it is to be noted that at first the pulse is not much affected; a little fuller, with moderate fever, but in the severe cases becomes weak and often intermittent, changing to thready and extremely irregular in a few hours. As, in the days of the chief epidemics, the thermometer was not used, the only evidence in the matter of temperature is derived from the more or less graphic statements of the medical writers of the past generation. It was not often increased more than 2° F., we may suppose, and rarely above 5° F. when catarrhal and croupous pneumonia were added to the morbid complexus. There is reason to be-

lieve that in those cases characterized by the predominating nervous element headache, dizziness, mild delirium, pains in the limbs, and obstinate wakefulness, and most commonly seen, although extreme somnolence and prolonged sleep have been observed in many instances.

Relapses are common, usually each succeeding seizure being milder, but not a few pass by easy transition into chronic bronchitis, emphysema, asthma, etc. The secretion of the urine is generally unaffected, except by those simple changes belonging to a mild febrile attack; but in not a few, the urine becomes albuminous and scanty, and anuria is added to the other morbid conditions and symptoms. Obviously a catarrhal process so extensive and severe may contribute immensely to chronic disease of the middle ear, Eustachian tube, nose and throat, and thus permanently damage the parts.

In a small proportion of cases, the stomach is disordered, diarrhœa supervenes or a dysentery appears, all due to the microbes which pass down with drink or food.

Something may be said, and very profitably, of the catarrhal epidemic epizootic which prevailed amongst horses in 1870 or about that time.

As an owner of some driving horses, and needing their service, I was necessarily a close observer. The horses well fed and carefully "stalled" were much less severely attacked than those in crowded stables and badly used in all ways. All were weak and had an aspect of suffering, were cool to the touch, had a little fever, but usually a subnormal temperature, some swelling of the neck glands, and the other symptoms of a catarrh, including a very purulent discharge.

The mortality was considerable in the severer cases, and the causes of death were the same as in man. It appeared to me that this epidemic disease is the parent of the affection in man, but modified by transition through so many, it has become milder, and each succeeding epidemic is less aggressive.

In the case of my own horses, I found atropine sulphate an efficient remedy.

Treatment.—Though having had no personal experience the general principles are such as to permit an authoritative expression. When the great epidemic of 1845–46 prevailed, President Tyler's personal experience was so unhappy that the popular name of "Tyler's grip" was given to that epideimic.

Persons suffering from catarrhal affection of the naso-pulmonary mucous membrane should adopt the most effective means to keep in good condition —for the impressionability is increased by anything that lowers the vital tone. Are there not microbes that may be used to lessen this susceptibility and any special readiness to receive a new morbid process to be engrafted on the old? It seems to me that the best manner of securing immunity is by the inhalation of sulphurous acid gas daily when the approach of the epidemic renders it necessary, and by taking five grains of salicylate of cinchonidine three times a day, and by so living as to avoid taking cold.

When the attack has begun, it seems to me desirable to give one or two grains of calomel at night, inhale some sulphurous acid gas, and have the patient sit in a room where steam containing eucalyptol can be inhaled in large quantity.

Local applications are useful as furnished in gases, in vapors, and in powdered solids by the method known as insufflation.

Of the gases, sulphurous acid is one of the more efficient against such troubles as tuberculosis, where a conclusion is reached by test of cultures. To give this, burn some sulphur in an apartment. The amount of the gas to be inhaled depends on the person and his condition. To determine these points, trials are necessary. Ordinarily, some constriction of the throat and a pronounced metallic taste—"brassy"—indicate the limit. The frequency may be twice or thrice a day. Peroxide of hydrogen, oxygen, or ozone will no doubt act well in suitable cases.

The best vapor to use during the preliminary dry stage is steam, and the patient may inhale constantly by filling the air of the apartment. With steam may be included the vapors of creasote and oil of eucalyptus, or turpentine. A simple method of using these remedies is to put into some water a sufficient quantity of eucalyptus leaves and add from time to time creasote or turpentine, or both. The water in the vessel containing these medicaments is made to simmer all the time. The heat may be obtained from a gas stove a gas-burner, or the common stove. The amount to be disengaged may here be ascertained by noting the effects on the local trouble.

Of the vapors, those most useful are ethyl-iodide, creasote, turpentine, iodine, carbolic acid, iodine with creasote or carbolic acid, etc. These are most useful in the stage when the dryness of the mucous membrane is becoming moist and relaxed.

By insufflation—that is, by projecting fine powders by blowing on the affected parts. An insufflator is an easy method for applying the powder; it has a cavity reservoir, a tube straight or curved, and an air-bag for forcing the air through.

Of the powders, those most useful are iodoform, salycilate of bismuth, tannin, iodo-tannin, and especially resorcin. The last-mentioned will be found to have an excellent effect, by dusting over the whole area as far as practicable.

The internal remedies that will do most good are, first, atropine in solution—gr. j to ℥j of water—

each minim containing $\frac{1}{480}$ to $\frac{1}{600}$ grain, and the dose will be from one to five minims, the minimum being for little children (after first dentition). The tincture of belladonna may be used — from one to ten drops twice a day. As this medicament is both prompt and prolonged in action, it should be given not more than twice a day, unless the dose be much smaller than is advised above. Salicylate of cinchonidine and quinine should be given as a prophylactic remedy, if there be reasons to suppose that such power is really exerted by it. My own conviction is that as a prophylactic the combination of cinchonidine with salicylic acid is preferable to quinine. For the depression and melancholy it is probable that atropine will do better. For the distressing headache, joint pains, and wakefulness, antipyrin, acetanilid, phenacetin, and other germicides and antiseptics, will, no doubt, be found useful.

SECONDARY BONE IMPLANTATION BY A MODIFICATION OF SENN'S METHOD.

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ANNIE H., aged seventeen, a native of the United States, was admitted into the wards of the German Hospital in September of the present year, with a diagnosis of necrosis of the lower third of the right femur. The history of the case is as follows: Family history negative; the patient was entirely well until two years ago. At that time she was occupied in household duties on a farm. One day, while scrubbing the floor in a kneeling position, she felt some pain which was referred to the right knee. The pain increased during the following day, when the joint became swollen and red. Three days later she was unable to stand or walk, when she was put to bed and confined there for the following thirteen months. Her treatment at that time consisted mainly in extension. The pains, which had been acute at first, became dull in character and shifted gradually from the front of the joint to the outer and lower aspects of the thigh. It was decidedly worse at night, the patient being frequently awakened from sleep by sharp, spasmodic, starting pains. Ten months ago she was permitted to get out of bed and move about on crutches. Soon after this an abscess formed on the outer side of the lower portion of the thigh, which was incised and evacuated by her physician, Dr. John Wentz, of Jeddo, leaving a sinus still present at the time of her admission to the hospital.

The affected knee had not regained its normal function. It was weak, "loose," and movements of flexion and extension were impaired, according to the patient's statement on admission. The above facts were found to be the case; also, coexisting lateral motion and soft crepitus were detected. On probing the sinus in the soft parts, the probe was readily brought in contact with exposed bone, which appeared solid. An examination of the other joints and of the secretions of the lungs and kidneys was negative. October 4, 1889, my colleague, Dr. J. William White, made a free incision, in the long axis of the thigh, opening up the sinuous tract, exposing the deeper structures. No necrosed bone could be felt under the periosteum, but upon chiselling out the compact substance somewhat deeply, a large cavity was discovered filled with débris and a sequestrum. After the cavity was thoroughly cleaned out it measured five inches in length and about one inch in breadth; the cavity trespassed on the spongy tissue of the external condyle. The wound was irrigated and the cavity packed with iodoform gauze wrung from a solution of bichloride of mercury, 1 : 2000.

The antiseptic bandage which enveloped the limb had to be reinforced several times, as there was considerable oozing from the wound. The limb was kept in an elevated position for several days. The second dressing was applied on the third day after the operation, and the third dressing on the tenth day. No pus was to be seen at either time. In spite of careful attention to the wound, a well-regulated diet, absolute rest, tonic and alterative medication, the process of regeneration was very slow. Dr. White's term of service having expired for the year, the case was placed under my care. Finding that the patient was not improving as rapidly as she should, I therefore decided to perform the implantation of decalcified bone chips (Senn's method). Dr. Senn, in an article in the *American Journal of the Medical Sciences*, September, 1889, states that a secondary implantation of decalcified bone chips can be as successfully performed as the primary operation, providing certain precautions (which I will state a little later on) are carried out. Having decided to operate, the granulations being in a healthy condition, I requested my resident, Dr. Gerlach, to irrigate the wound for several days previous to the operation with a solution of bichloride 1 : 1000. On the evening before the operation the patient was thoroughly bathed and an antiseptic dressing applied over the site of the operation. On Saturday, November 24th, the patient was brought before the clinic, the anæsthetic used being ether.

My assistant, Dr. Brinkman and my resident surgeon Dr. Gerlach, having rendered the patient and surroundings aseptic, I proceeded to the operation by first applying an elastic tube above the seat of operation, to prevent the blood from obscuring the wound. The operation consisted of four stages: First, thoroughly curetting the bone cavity to remove the granulations, so as to render it as clean as after a primary operation; second, separating the soft parts from the bone and dissecting off the cicatricial tissue around the cavity by free use of the scalpel; third, carefully dusting the entire cavity with sterilized iodoform, then placing therein a layer of decalcified bone chips, and repeating the iodoform, layer after layer, until the cavity was entirely filled, covering the last layer of bone chips with a layer of iodoform; fourth, the introduction of a deep set of sutures of aseptic catgut through the deep fascia, the perios-

teum having been removed by the primary operation, and completing the closure of the wound by bringing the skin and superficial fascia together with interrupted sutures of silver wire, observing the precaution to secure perfect coaptation. The final dressing was made by dusting the wound with sterilized iodoform, over which was placed a strip of aseptic protective (silk), and over this several layers of bichloride gauze wet in a solution of bichloride 1 : 2000, bichloride cotton held in position by an aseptic gauze bandage. The elastic tube was now taken off and the limb placed on a padded posterior splint, which was held in position by a muslin bandage which had been soaked in ninety-five per cent. alcohol for twenty-four hours. The entire limb was then placed in a fracture box and the patient returned to bed. The evening of the day of the operation the patient developed a violent conjunctivitis of the left eye, no doubt due to accidental contact with the ether. During the same evening she became decidedly delirious, with vivid visions, and fear alternating with ecstasy. With the mental disturbance she had an increase in bodily temperature which ranged between 99° and 101° F. The mental excitation lasted about forty-eight hours. The first dressing was removed on the tenth day after the operation, when it was found stained by the oozing following the removal of the elastic tube. The wound was perfectly aseptic. Some of the stitches, which were commencing to cut, were removed. The wound redressed with as great care as at the first dressing. The second dressing was removed seven days later when, with the exception of the ulcerating points in the skin caused by the remaining sutures, it was aseptic: these were removed at this dressing and the wound dressed antiseptically as above, the limb being still kept at rest by the use of the splint and fracture box.

Precautions and preparation of the bone-chips.—The precautions for the above operation are: first, that the granulations must be perfectly healthy; second, that the wound be thoroughly irrigated twice daily for several days previous to the operation with a solution of 1 : 2000 bichloride of mercury; third, that the iodoform should be sterilized; fourth, that the bone-chips should be aseptic; and last, but the most important of all, complete and thorough asepsis.

The bone-chips should be prepared as follows: The bone to be preferred is the tibia or femur of a freshly killed bullock, which can be easily procured at an abattoir. It should be immediately wrapped in a wet aseptic towel or several layers of wet aseptic gauze to prevent infection while being carried.

Arriving at the office the bone is to be sawed into segments two inches long, the articular extremities being discarded. Place the segments in a fifteen per cent. solution of hydrochloric acid in distilled water, after having removed the periosteum and marrow. This solution should be changed every twenty four hours, until the segments become decalcified, which requires from two to four weeks. When this process is completed the segments are to be washed in distilled water, then immersed in a dilute solution of caustic potash to remove the excess of acid. After the acid is neutralized, the segments are again immersed in distilled water for twenty-four hours, when they are then taken out and the cancellous structure in the medullary canal removed. The segments are now to be cut into strips in the direction of the long axis of the bone, of one-half to three-quarters of an inch in width. They are then ready for the last step in the process of their preparation, that of slicing them into chips of one millimetre in thickness. The chips are now to be placed in a glass-stoppered bottle containing a solution of bichloride of mercury in alcohol 1 : 500 and kept there until used. At time of operation the necessary amount of chips is to be placed in a five per cent. solution of carbolic acid.

Conclusions.—On reviewing the above case carefully, several points have been forcibly impressed on my mind: First, that the delirium following the operation was due entirely to the iodoform, as free iodine was found in sufficient quantity in the urine to warrant such a conclusion. But this action of iodoform need not give the surgeon any alarm, as it is only temporary. I wish here to state, that in my experience I have found iodoform, if properly sterilized, of very great advantage in the dressings of all surgical wounds, but especially in those made upon scrofulous tubercular and syphilitic subjects. Second, the liability to wound infection at the second dressing caused by the cutting of the sutures, which happened in this case, there being absolutely no pus present until the sutures were removed, when the tracks left by them became the seat of superficial ulceration. Third, that the cutting of the sutures is a complication which should not occur in primary operations, but in secondary operations it may occur, owing to the increased tension in approximating the soft parts caused by the removal of the cicatricial tissue surrounding the cavity. Fourth, that the symptoms of iodoformism, which were present in this case, were evidently due to the additional amount of the drug used in modifying Senn's method of alternating layers of iodoform and bone-chips, yet personally I think that this manner of packing the cavity is the preferable one, and in operating on subsequent cases I shall practise it until I have stronger evidence of its being detrimental to the welfare of the patient. Fifth, that unless the surgeon practising bone implantation after the above method is perfectly familiar and experienced in the technique of thorough aseptic surgery he need anticipate nothing but disappointment. Sixth, that drainage is not essential.[1]

[1] Patient at time of writing of this paper is up and around, ready to go home.

DIOXIDE OF HYDROGEN IN GENERAL SURGERY.

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HAVING for some time past been making use of peroxide of hydrogen in all sorts of surgical conditions, and thinking that the agent is to find a definite and wide field therein, and, further, believing that the profession at large has not as yet been introduced sufficiently to its many applications and apparent benefits, I submit this clinical note.

What is known and sold as dioxide or peroxide of hydrogen consists of a more or less strong solution of peroxide of hydrogen gas in water. The strongest solution sold at present is termed the 20° or saturated solution. Practically we may call the substance water plus an atom of oxygen. Under almost any conditions the solution and the gas itself are unstable, but especially so in the presence of heat or organic matter; furious is its attack upon the lower vegetable forms of life and upon organic secretions or products such as pus, blood, serum, lymph, and saliva. The chemistry of its action depends upon the oxygen of the gas entering into new combination whilst its hydrogen is set free, causing great ebullition. It is this property of so readily parting with large quantities of oxygen (of course, in a nascent state) which renders it the substance of value in surgery.

Peroxide of hydrogen was introduced into medicine by Dr. B. W. Richardson, of London, who, so long ago as 1860, recommended and used the agent for almost all external and internal purposes to which it is now being, or about to be, applied. But, surprisingly, for some reason—possibly lack of pathological and bacteriological knowledge—its medicinal employment was soon totally discarded, and its valuable properties forgotten until a few years since, when the drug again came into use as a cleansing and sterilizing agent among laryngologists and otologists; whence, indeed, came the hints leading to its employment in general surgery.

Its field in the latter department of medicine is as a cleansing agent, wherever dead or living organic matter of low degree exists. The peroxide will not affect living tissues even to the stage of irritation, hence does not destroy most recently formed epithelial cells, while at the same time it burns up by oxidization all adjacent organic material of lower degree, such as microörganisms, their products, and their means of sustenance. This is more than can be said of other antiseptic agents, for, taking bichloride of mercury as an instance, a solution of it sufficiently strong to kill bacteria will also destroy newly organized cells. Then, again, our standard antiseptics do not remove the sterilized organic matter, nor penetrate into it so deeply as does the peroxide, which will eat through almost any depth of pus, lymph, etc., burning them as it goes, not, especially as in the case of sublimate, precipitating an almost impermeable layer of coagulated albumen which may screen septic matter beneath.

I am aware that certain bacteria act with vigor only in the presence of oxygen; but that form of oxygen to which they are subjected when hydrogen peroxide is used is *nascent*—a vastly more powerful element, the destructive energy of which in all probability they cannot resist, much less be enlivened by.

On the other hand, we can predict with much certainty that tubercular disease, which depends for its very existence upon a bacterium to which oxygen is most deadly, will afford a great field for the use of the peroxide. I have treated tubercular abscesses and sores by washing them out with the hydrogen solution and had them close up almost like simple incised wounds, and this, too, without use of the curette.

In ulcers of all kinds the effects have been surprising. The new epithelial cells cover over the denuded surface in a length of time occasionally almost incredibly brief. So, also, in burns have the effects been most satisfactory.

In practice, the surroundings of the sore, wound, or abscess are cleansed with turpentine, soap, and water, then the peroxide is poured on or injected until bubbling ceases, then protective in strips and an aseptic or antiseptic dressing is applied as usual. If bichloride is also to be used, the peroxide should be poured on first, as the latter will not act in presence of the former, whereby, also, the coagulum film usually produced by bichloride is likewise avoided.

In keeping drainage-tubes and deep cavities, as abdominal or pleural abscesses, drain tracks, or fistulæ, sweet and clean the solution is superior to anything that I have heretofore employed; principally for the reasons that while it is extremely effective yet it is absolutely innocuous and free from toxic effect. So safe, indeed, that even spoonfuls can be swallowed, and I am willing to leave it in the hands of nurses to use freely.

Why peroxide has not been used in the eye I cannot comprehend. One case of purulent ophthalmia which had resisted all efforts for several weeks in the hands of others, at once cleared up after but two instillations of the drug. Having, therefore, proved so useful in other purulent processes, I think it will likewise be found beneficial in gonorrhœa, gonorrhœal and other septic ophthalmiæ, and all tubercular processes where we can get the drug to the affected locality, as well as to many other of the innumerable septic conditions which are daily

presented to the surgeon or physician. In septic conditions of the mouth, thorax, abdomen, uterus, bladder, and vagina, it should be of especial worth from its non-poisonous yet powerful properties. In special regions. such as the conjunctiva, previous use of cocaine will prevent even the slightest pain. For cleansing surfaces where skin grafting is to be employed, or is going on, this drug is invaluable.

Further, peroxide appears to have a marked hemostatic effect: in contact with blood the latter is first turned to a brilliant scarlet hue of superoxygenation, and a second afterward is blackened by the cremative action of the nascent oxygen.

I have, as a test, used the oxidizing agent alone upon a few simple wounds, and they have progressed as well as would have been expected had other antiseptics been used.

It is not the belief of the writer that peroxide of hydrogen is to supplant bichloride of mercury, except in certain fields where the employment of the latter is undesirable or unsafe: more is its function to be as an adjuvant to the sublimate.

Recognizing that bacteriological investigation should precede clinical application of an antiseptic; but not being aware of such experimental facts, and not having time or facilities to elaborate them, I simply offer here the results of a limited clinical experience with the drug, hoping thereby to direct attention and investigation to the subject, and ultimately to call forth more exact knowledge of its properties, powers, advantages, and disadvantages.

SIMPLE METHODS OF PHOTOGRAPHING WITH THE MICROSCOPE.[1]

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PROFESSOR OF DISEASES OF THE EAR IN THE PHILADELPHIA POLYCLINIC; OPHTHALMIC AND AURAL SURGEON TO THE EPISCOPAL AND CHILDREN'S HOSPITALS.

THE praises of photography direct from the microscope have been already rung by men whose success in the employment of this means gives the best possible support to their claims of its value,[2] and the number of those who are using it is daily growing; yet there remain a large number of microscopists who fail to perceive its merits, or who regard the matter as lying outside of their field of work. They look rather scornfully at the best photographs of microbes or diatoms over which photographic experts grow enthusiastic, and incline to regard as a failure any photograph which falls short of giving the conventional picture of the diagrammatic drawings of the text-books. Even when unprejudiced examination has shown the exquisite fidelity and the diagrammatic clearness which may be obtained by photography, they still regard it as the province of the photographic enthusiast rather than of the practical microscopist. One reason for this is that they rarely see direct photographic illustrations used in actual publication, since it must at once be conceded that the reproductive methods now available are far from satisfactory; but probably the most potent obstruction to the widening of the use of photography is the prevalent impression that good results are obtainable only at great expense of time and money. Men glance, for instance, into Sternberg's treatise, only to lay it down with a sigh because all this apparatus is unobtainable; and, overlooking all that may be said about simple or improvised appliances, they resign all thought of entering the field.

Such considerations long withheld the writer from essaying the attractive task; but a single demonstration by Dr. Piersol of the possibilities of work by lamplight at once removed his misgivings and opened up the matter to him; and later work has fully confirmed him in the view that there is no reason why any microscopist should not obtain photographic pictures surpassing the highest skill of the draughtsman, not only in their unimpeachable accuracy, but even in their schematic sharpness. And as the demand increases for the direct reproduction of such pictures, there is every reason to believe that the mechanical arts will succeed in furnishing them with a perfection and a cheapness which no present method affords. It may safely be predicted that the time will come when photography will be employed to represent adequately all that the microscope can *show*, and that drawings will be needed only to demonstrate the points which *may be inferred but cannot be seen* in the preparation.

The two questions that most concern microscopists are: What apparatus is necessary in order to obtain good results? and, How may good photographs be gained with a practicable expenditure of time?

Let the beginner first decide what he specially wishes to photograph, and he will be wise not to choose the most difficult possible subject at the outset. Microbes that are almost beyond the highest resolving power of his instrument, do not offer the most favorable opportunities for success, however attractive they may be in this "cocco-phobic" age—objects that are resolved rather by the brain than the objective had better be deferred until some experience has been gained. Low-power work—too generally neglected—with good, clear sections, well-stained and thin, forms a more reasonable starting-point; and here apparatus of almost absurd simplicity will be all-sufficient. Some sort of camera is requisite; and, while it may be improvised, most men will do better to buy one of the many forms in

[1] Read before the Philadelphia Pathological Society, Nov. 14, 1889.

[2] Vide Piersol, Medical Photography, Trans. Phila. Path. Soc., xiii. p. 243.

the market, some of which are especially designed for this purpose. A "long draw" is a great convenience, since it permits of much choice in the amplification and size of the field, but it may be substituted by several cones of different lengths for uniting the camera to the microscope. These cones are easily made of pasteboard or any light-tight material, and constitute the only peculiar essential to photomicrography. Any camera and any microscope thus linked together may be successfully used, and no great skill is requisite in order that the usefulness may be limited to no narrow field. Good objectives are, of course, essential to first-class work, and any defects in transparency, definition, correction for color, or flatness of field, are apt to show in the results. But specially corrected lenses, like heliostats and other special appliances, are unessential, though valuable, and may be left to the expert who has unlimited time and money to devote to the matter, and aspires to the infallible conquest of every object which may be presented to him. The practical microscopist who takes up photography not as an end, but as a means, will usually find that his stand and lenses are equal to his needs in achieving good, and perhaps the very best, results within a fair range of subjects.

As an illumination sunlight is probably unapproachable, not only in its possibilities, but in the extreme simplicity of its employment. "But I have no daytime to give to the work," may seem a crushing answer to that; yet there are few microscopists who in the course of a week could not find one hour of leisure while the sun shone, and one hour of sunshine well used may give thirty or forty exposures, with the possibility of as many good negatives. The north light, which serves so admirably for most microscopical work, must be abandoned in favor of a window into which the sun shines; and, in the absence of a specially adapted table, an inch-plank, about six feet long by a foot wide, must be so adjusted that the sunlight shall fall upon the mirror of the microscope as it stands upon it, with the tube horizontal and connected with the camera. A vertical position is possible, of course, and may be compulsory in case the microscope-stand has no joint for horizontal inclination, and some fluid preparations may perhaps be thus better managed. In any event, it will be found convenient to secure the camera to the board or table top by small blocks and buttons, and it can then be used in any position, and when out of service may be stood up in a corner. For powers under 100 diameters, the reflection of the sun by the plane-mirror of the microscope, without any accessory apparatus, is all that is required—no condensor is requisite, and without it the heat-rays need not be cut off by a blue-cell. A mirror placed a couple of feet behind the ground glass of the camera (a standing toilet-glass answers admirably) is a great aid in adjusting the illumination, the field, and the approximate focus—then the fine adjustment is made with the aid of a magnifying glass. For this last purpose one of the microscope-oculars deprived of its eye-lens serves admirably, its tube being just the right length to allow of accurate focussing of the rough inner surface of the ground glass. For very high-power work a smoother surface than is furnished by the ordinary ground glass of the camera is said to be requisite, but for moderate-powers this answers perfectly. On either side of the true focus the image appears stronger and better defined than at the right point, because its outlines have an appreciable breadth instead of being mathematical lines—"where the image seems to melt into the ground glass" (Piersol) is the point of most perfect adjustment.

Unless the distance to which the image is projected is short, the arm will not reach the fine adjustment so as to allow of the necessary accurate focussing. Dr. Piersol's arrangement is, therefore, advisable—of a cord with weights carried across the head of the fine adjustment-screw (taking a turn around it, if it move stiffly), and passing through rings on the base-board, to be carried back along the edge, where it will always be within reach. A similar arrangement for the rack and pinion is rarely needed, since almost perfect focus can be made while standing by the microscope and looking in the mirror back of the ground glass. As this mirror allows in the same way of exact adjustment of the field to be photographed, no arrangement need be made to detach the microscope so as to search for this with the ocular. In photographing, an ocular may be used to increase the power, or an amplifier may be introduced into the tube; but the beginner will do better to work without either until he has learned to use his objectives by themselves, and has found them in need of such aids.

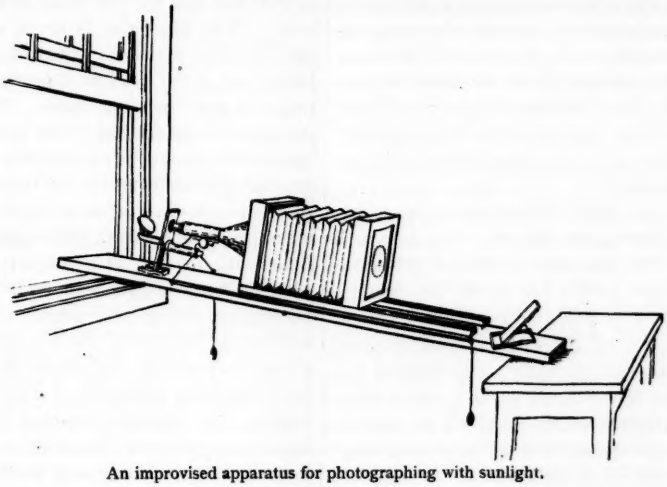
As to the exposure—use the slowest plate obtainable (such as Carbutt's A), as it gives the greatest latitude, and gives the shortest time that will afford a picture—vigorous development will then give a crisp negative with strong contrasts. If your negatives lack this quality, ask an expert photographer about them, or perhaps take him one or two to develop with you. The microscopist had better develop his own plates—any spare time can be utilized for it, and if night-time be chosen, any room with only a red light in it becomes a photographic dark-room. But he had better have a dark-room, if only a suffocating closet, since he can thus test at once the accuracy of his exposure, etc., and make another trial before changing his apparatus, if the first has not been satisfactory. A negative can be covered up light-tight in its developing-pan, while the operator runs in and out continuing his work, making new exposures, and trying new subjects; but mottl-

ing of the plate may result if it is left in the developer without occasional agitation. Such methods are unsystematic and indefensible from a photographic point of view; but the busy microscopist may find that he can by such unwarrantable measures sometimes treble the number of his successes without notably lessening the value of any one of them. Thus developing, one here and there, of a series which he wishes to make, the microscopist can photograph thirty or more preparations in a single hour of good sunlight; and as he puts away his apparatus at its close, he can count four or five finished negatives and some two dozen exposed plates that give promise of being as good as soon as he finds time to develop them. If this time is lacking, they may be turned over to a professional photographer, as may also the tedious process of making paper prints from the negatives.

How long to expose? will always be the cardinal question, and the learner will generally be disappointed at the vague answers he receives from the expert. Hold to one brand of plate (the same emulsion if possible) and one developer, as giving two constants in the problem, and note carefully the lens, the distance to which the object is projected, and the clearness of the atmosphere when the exposure is made; and study your results with an expert when you can. Over-exposure is most usual in working with sunlight, and the developer needs restraining. "Bromide of brains is the best restrainer." In making the exposure some opaque object may be held so as to cut off the light from the mirror while the slide is withdrawn, the exposure made by moving it aside and again interposing it, and then the plate-holder is closed once more. In the writer's work using a 1" Reichert lens with good sunlight and Carbutt A plates (sensitometer 10), and obtaining an amplification of 25 diameters, the correct exposure is about one-fourth of a second. The light is inversely as the square of the projection distance—so with similar conditions, except double length of draw and 50 diameters, the exposure should be one second. A quick hand can limit the exposure to one-fourth of a second or less—as short as has been found necessary—but a drop-shutter can be improvised to give a smaller fraction as may be desired. Summer sunshine is several times as rapid as that of winter; that of noon is far faster than when the sun is low; very little haze in the atmosphere lessens greatly the actinic power. These are facts in a problem that must be left to the judgment of the operator.

The field embraced in the picture is often an important matter, requiring considerable attention, and care must be taken that the plate shall receive all the essential portion of the image visible upon the ground glass. To this end, the point corresponding to the centre of the plate when exposed should be marked upon the ground glass, and a circle drawn around this to mark the minimum dimension of each size of plate to which the camera is adapted. Since the margins of the plates as bought are frequently faulty, the circle had better be only three inches for a 3¼ x 4¼ plate, etc.; though the full size of the plate can often be used without unwise economy. The draw-tube of the microscope is generally furnished with a diaphragm, which is of value in giving definition and flatness of field, but reduces materially the size of the field; the entire draw-tube can, therefore, be removed at times in order to bring the periphery of an object into view without any serious compromise of the sharpness.

The method of work thus laid down has one car-



An improvised apparatus for photographing with sunlight.

dinal difference from every other—it is working with the parallel rays of sunlight, and the effect is practically to photograph the disk of the sun with the preparation silhouetted against it. Every opacity which intervenes between the sun and the sensitive plate will make its mark upon the negative—dust on mirror, slide, or lens, scratches on the lens-front or bubbles in the balsam between the lenses, floating moats in the air, perhaps even sunspots, will show in the result. Stringent cleanliness is therefore requisite. To outweigh these disadvantages, the penetration thus obtained in a thick preparation, by the searching character of the light, will at times far surpass the performance of the same lens with an ocular; while, on the other hand, detail that is out of focus will often be drowned out by the flood of light—just as by the Abbé condenser when used to seek stained microbes in the tissues. A thick, poorly differentiated specimen may thus give a good photograph; yet well-stained, thin and even sections are none the less preferable. Although non-actinic colors have great theoretical advantages, admirable pictures can be obtained from hæmatoxylon preparations. Orthochromatic and other stained plates, as well as Dr. Piersol's method of actinic contrast, may prove a great addition to our refinements; but these are points which need not concern the beginner, who will do better to concentrate his attention on the simpler methods.

If the microscopist must confine himself to night-work, his task will be more difficult. Any lamp will serve as a source of light, and a little night-lamp, costing twenty-five cents, has been the writer's choice. It is to be placed, with its flame turned edgewise, in the line of the microscope-tube, and, except for very low-powers, some concentration will be required. For this purpose a bull's-eye or some form of substage condenser, or both, will be needed. One of the objectives can be adapted as a substage condenser, or the B ocular, which Dr. Piersol recommends, may be so employed, if the microscope lacks an Abbé or other regular apparatus; but with any form the problem of an evenly and strongly lighted field will demand careful, painstaking solution. The heat-rays emanating from even a tiny flame can by no means be neglected; or the operator may find his balsam melting, and a most singular streaky picture resulting from movement of the specimen while the exposure is going on. A mere piece of interposed plane-glass or isinglass will cut off much of the heat, or a blue-glass may be used below the stage, but at times the cell of ammonio-sulphate of copper may be needed. Rapid plates are in place for this work, since the time of exposure must always be considerable—averaging at least as many minutes as the sunlight required seconds. A convenient dark-room, however, will enable the operator to carry on several processes at once, and two dozen good negatives may often be made in an evening. With powers above 100 diameters the writer has done rather better work with lamplight than with sunlight; but this is because he has never prepared himself for high-power work. Concentration of the light is needed for such work, and can be used with safety to the objective and preparation only when the heat-rays have been eliminated—a matter easier with lamplight than with sunlight.

A few words in recapitulation. By securing a camera, with a cone to connect it with his microscope, a piece of plank, a developing solution, some hyposulphite of soda, a ruby light, a few pans, and some dry-plates, the microscopist has the needed outfit for beginning his photographing. The outlay will be from $20 up, but may be greatly lessened if the camera is made, borrowed, or bought second-hand. Fastened to its base-board, the camera may stand out of the way in a corner until wanted; then in five minutes all can be gotten into readiness for work. The apparatus is to be so placed that the sunlight falls upon the plane substage mirror (projected out of the window if necessary), and the light reflected into the instrument. The standing-mirror is placed at the far end of the apparatus, so that the operator as he stands by his microscope can see the ground glass reflected in it; then it is easy to adjust the illumination, find and centre the field, and get an approximate focus. Accurate focussing is then done with the aid of a magnifying glass, and the plate-holder charged with its sensitive plate is substituted for the ground glass. An opaque object is held so as to cut off the sunlight while the slide is drawn, is removed and replaced, so as to make the brief exposure desired, and then closing his plate-holder, the operator detaches it, and seeking his dark-room proceeds to develop his negative, and reloads. A miss may call for another shot—a hit will open the way to a long series of results more or less successful. Taking careful note (written as well as mental) of each exposure, the microscopist will quickly become master of one situation at least; and, while he must expect varied fortune when he changes the conditions and enters unknown territory, he will find much of it open to ready conquest, and having once entered the field, he will not quickly be willing to quit it. Let him begin with sunlight and a good low-power objective, and he will quickly achieve brilliant results, which the expert can hardly excel; and even though he makes no attempt to enter other fields, he will find that he has made a most valuable addition to his powers as a microscopist.

THERAPEUTICAL NOTES.

The Treatment of Acute Catarrh of the Rectum.—Quite frequently the practitioner of medicine sees cases in which the entire list of remedies generally found of value in the treatment of diarrhœa have proved useless, or merely palliative in effect. While they may control the frequent movements of the bowels for a time, the trouble reasserts itself, as soon as the medicine is withdrawn, at the best in a somewhat modified form. Careful inquiry will show, in such cases, several points of value as to diagnosis and treatment. The attack has probably been preceded by a few days during which there has been a sensation of weight or fulness in the rectum and about the anus; following this, a sensation of bearing down asserts itself, accompanied by violent pain referred to the region of the stomach, or small gut. So severe is the pain in its paroxysms that the patient may cry out with it, and the perspiration break out over the body. At first small passages may occur, but after a few stools they consist of wind and a few drops of mucus, which is expelled after a period of agonizing pain and tenesmus. Opium makes the state ultimately far worse than before, and nearly all astringents are valueless. Under these circumstances, small doses of chlorate of potash injected into the rectum are most serviceable, only one or two injections being necessary in some acute cases to produce a cure. A saturated solution of the potash in water should be employed, and about half a tumblerful injected each time, very slowly and without force, and retained for ten or fifteen minutes. Large injections will cause pain and expulsion of the liquid, and no result will be attained.

MEDICAL PROGRESS.

Treatment of Hairy Moles.—DR. ARTHUR JAMISON has found ethylate of sodium the most satisfactory remedy for the removal of hairy moles. The hair is cut short and the ethylate is rubbed in with a glass rod till the surface assumes an orange or black hue. The crust so formed is allowed to separate spontaneously, for which a period of three weeks is sometimes needed. Most of the hairs will then be found destroyed, and a white smooth scar left. Any hairs which remain can be dealt with by the same method *seriatim*. In using the ethylate care must be taken that it does not run down on the sound skin, and the part treated must not be touched with water till the crust comes off.—*Edinburgh Medical Journal*, December, 1889.

The Treatment of Placenta Prævia.—DR. J. BRAXTON HICKS thus summarizes his opinions upon the treatment of placenta prævia:

1. After a diagnosis of placenta prævia is made, proceed as early as possible to terminate pregnancy.

2. If the os be fully expanded and placenta marginal, rupture the membranes and wait to see if the head is soon pushed by the pains into the os.

3. If there be any slowness in this respect, employ forceps or version.

4. If the os be small and placenta more or less over it, the placenta is to be carefully detached from around the os; if no further bleeding occur, wait an hour or two. Should the os not expand, and if dilating bags are at hand, the os may be dilated. If the forceps can be easily applied, they may be used; but if not, version by the combined external and internal method should be employed, and the os plugged by the leg or breach of the fœtus; after this is done the case may be left to nature, with gentle assistance, as in footling and breech cases.

5. If the os be small, and neither forceps nor dilating bags are at hand, combined version should be resorted to, leaving the rest to nature, gently assisted.

6. If during any of the above manœuvres much bleeding should occur, it is best to turn by combined method in order to plug by the breech.

7. Where the fœtus is dead, or labor occurs before the end of the seventh month, combined external and internal version is the best method.

8. If, however, a routine method is employed in all cases, it will be found that version by the combined method—no force following—gives a result as good, if not better, than any.

After-treatment.—The after-treatment must be conducted on the modern principles: should oozing occur after the expulsion of the placenta, the swabbing of the lower uterus by styptics will be easy; and inasmuch as the outlet of the uterus is liable more especially to be blocked by adherent clots, it will be wise to irrigate the uterus daily with some antiseptic solution, or insert iodoform pessaries in the vagina, particularly if the irrigation cannot be done.—*British Medical Journal*, November 30, 1889.

Somnal: the New Hypnotic.—In the *Zeitschrift des Apotheker-Vereines* of November 10, 1889, is a notice of a new hypnotic, introduced by HERR RADLAUER, of Berlin, to which he has given the name of somnal. This body is formed by the union of chloral, alcohol, and urethan; it is a true chemical combination, and differs from the already known compound chloralurethan. It occurs in clear, colorless crystals, which have a slightly bitter taste, and are very soluble in water and alcohol. It is given in two-gramme doses, and in half an hour after its administration a sound natural sleep is produced, which lasts from six to eight hours, and the patient experiences no unpleasant effects upon awakening. It does not derange the digestion, and has no influence upon the pulse or temperature. In fact, it combines the excellent qualities of chloral and urethan without any of their unpleasant effects. It is already in use in the hospitals of Berlin and Moscow, and appears to have given satisfaction.—*British Medical Journal*, November 30, 1889.

Early Surgical Treatment of Perityphlitis.—In a paper read by DRS. E. W. LEE and J. B. MURPHY before the Chicago Medical Society, November 4, 1889, the latter said that as it is impossible to make experiments on the vermiform appendix in the lower animals, it being present only in the ourang-outang and a species of bat, our knowledge of its physiology and pathology must depend on observations made upon it in man. Its absence in such a large number of omnivorous animals would lead to the belief that it has no influence on digestion. Notwithstanding our inability to attribute to it any special function, we still see the evil effects produced by its diseases. From its form, its valve, its position, and the different mechanical influences to which it is subjected,

there may occur a retention of feces or foreign body within its lumen. These feces become solidified and by their presence induce hyper-secretion of mucus, which deposits its phosphatic and other salts as a concretion around the retained nucleus in the appendix.

The authors then endeavored to demonstrate that *perityphlitis vermicularis* belongs always to the province of surgery, and that its dangers are avoidable and its recurrence preventable only by surgical interference. Such a statement may appear radical, but they sustained it by two facts which may be considered as positively proven: (1) That perityphlitis is *always* accompanied by the development of a pus-cavity. (2) That with medical treatment the patient is liable to a recurrence of the disease. Within the past three years they had made autopsies on three cases which showed that fatal peritonitis was caused by the rupture of the perityphlitic abscess into the peritoneal cavity, where its existence had not been previously diagnosticated.

The dangers are:

1. Perforation of the appendix, permitting escape of its contents into the peritoneal cavity directly or indirectly by a rupture of the circumscribed suppuration.

2. Where the abscess is extra-peritoneal, by the formation of a septic phlegmonous cellulitis and death from sepsis.

3. By the emptying of the contents of the abscess into some of the neighboring organs or cavities, as the bladder, kidney, or thoracic cavity.

Perityphlitis treated on the expectant plan is a frequently recurring disease. Paulier states that the first recurrence came from the twentieth day to the twentieth month (Thèse de Paris, 1875). From the 106 cases which were collected by Krafft, of Lausanne, 24 had previously experienced attacks. In one case the attack occurred twenty years previously, in another seven, and in another three. One case had a previous attack in 1863, lasting thirty-two days; in 1864, a recurrence, lasting twenty-eight days; in 1865 another, lasting nineteen days; in 1866 still another, making in all four seizures in three years. The frequency of recurrent attacks of perityphlitis the authors could sustain, as their observation coincides with Krafft's. Krafft, in 106 cases in which the diagnosis was verified either through autopsy or direct incision into the abscess cavity, found that in all of them greater or smaller accumulations of pus were present at the seat of the appendix or cæcum. Out of the 106 cases there were 84 autopsies, in all of which abscesses were found in the ileo-cæcal region. Eight times he operated in the absence of fluctuation, redness, or swelling of the abdominal wall, and eight times he found pus. In the remaining 14 cases, the abscess emptied into the cæcum or other organs. Drs. Lee and Murphy found pus in each of their 13 cases. Bull had collected 67 cases of perityphlitic abscess, 38 of which opened externally through the abdominal wall, 8 into the peritoneal cavity, 2 into the thoracic cavity, 2 into the bladder, 2 into the internal iliac vein, 1 produced chronic peritonitis, 1 pyæmia, and in 1 the result was not ascertained. Of Paulier's 49 cases, 4 opened into the peritoneal cavity, 6 into the retro-cæcal cellular tissue. Of Krafft's 106 cases, 17 opened into the cæcum, and 1 into the bladder. His cases operated on by direct incision into the abscess cavity all recovered.

That the cause of perityphlitic abscess is perforation of the appendix is sustained by the fact that among 645 recorded autopsies there were 324 perforations. It is recorded in cases of perityphlitis that the cæcum is frequently peforated from within outward, but Krafft is convinced that if a careful examination of the opening be made it will be seen that the *perforation occurs from without inward, and not from within outward*, showing that the opening in the cæcum was not caused by an ulceration of the mucous membrane, but by an ulceration of the abscess wall into the cæcum. In Weir's 100 cases there were only 4 perforations of the cæcum; 2 of these were openings from without inward. The vermiform appendix is not only perforated, but part of it entirely destroyed, as is shown in two of the cases reported by the authors. Perforation usually occurs at the free end, but when it occurs in the middle the ulceration is circular and the appendix can be amputated as shown in one of their cases.

The cause of the perforation is found to be most commonly fecal stones. Of Matterstock's 146 cases, in 63 he found fecal stones, and in 9 foreign bodies. Of the 49 autopsies on children, 27 fecal stones were found, and 3 foreign bodies. Of the 106 cases of Krafft, 86 were fecal stones, and 9 of other foreign bodies. Of the 13 cases reported by the authors, fecal stones were found in 5; a fragment of bone was found in one case. The fecal stone is a small bean-shaped body, rounded at both ends, usually smooth on the surface, and varies in size from that of a small pea to that of a peanut. Some of them are hard, others soft and friable. The centre is usually of a yellowish-gray color.

Toft states that in one-third of the autopsies made between the ages of twenty and seventy there were pathological changes in the vermiform appendix. In 5 per cent. of these cases there had been ulceration of the appendix.

Dr. Ludvig Hektoen, of Chicago (pathologist to Cook County Hospital), in 215 consecutive autopsies on adult cases at the Cook County Hospital, found adhesions of the appendix. He did not note the number in which there had been previous ulceration. In 9 of the cases the appendix was adherent to the parietal peritoneum, which elucidates the frequency with which the abscess is extra-peritoneal.

The question When shall we operate? is an important one. Deahna operated on 7 cases in which there was neither fluctuation nor phlegmon in the abdominal wall, and in only one case did he fail to find pus. He operated from the ninth to the twenty-first day from the onset of the attack. In one case he failed to reach the abscess, but the pus emptied itself through the wound on the second day afterward. Usually at the end of the fourth day symptoms of general peritonitis subside, and there can be felt a slight induration in the right iliac region; then is the time to operate. Willard Parker has suggested performing the operation from the fifth to the twenty-first day, but only in the presence of phlegmon and induration. Eichhorst also says that operation should not be performed where fluctuation is not present. Drs. Lee and Murphy do not consider those cases in which fluctuation is present, for they have always been successfully operated upon. They desire to call the attention of the profession to cases where there is only a small induration in the ileo-cæcal region, with the accompanying symptoms of perityphlitis before

there is the slightest evidence of fluctuation or phlegmon in the abdominal wall. As yet, the number of cases operated upon have been too small to lay down any definite rule as to the time for operating, notwithstanding it is their conviction that before many years every case of perityphlitis when diagnosticated will be immediately opened, the appendix ligated, if possible, and amputated. The one sign in their cases invariably was a small induration in the right ileo-cæcal region, and in this induration the authors invariably found pus. The surgeon must not depend upon the number of days from the beginning of the attack, as a guide to operative interference. The cases differ so widely that often after forty-eight hours from the onset of the attack it is too late; in other cases weeks or months may elapse before an operation is demanded. Of the 76 fatal cases collected by Fitz, 56 died from perforation in the first week, 31 in the second, 4 in the third and fourth. His statistics show how early a fatal termination can take place and how *imperative* an early operation is. In general, it could be said that as soon as the diagnosis was made, too early an operation was impossible.

"Of the mortality in the number of cases operated on early, we have: Bull, 17 cases, with 15 recoveries; Krafft, 8 cases, 8 recoveries; Deahna, 8 cases, 8 recoveries; their own 8 cases, 6 recoveries. Weir's 26 cases operated upon cannot be included in the early cases, as he says that the operation was frequently postponed for a long time, not as a matter of choice, however, but because he saw the patients only in consultation, or because they would not submit to an operation. Noyes found in examining the statistics of 100 cases operated on, that of those operated on after the eighth day, 17 per cent. died. Of those operated upon before the eighth day, 8½ per cent. died, there being 50 per cent. more recoveries in the cases operated upon early—that is, before the eighth day."

Some Incompatibilities of Antipyrin.—If fluid extract of cinchona be added to a solution of antipyrin in distilled water, a dense reddish-brown precipitate is formed, which contains tannic acid and antipyrin. The greater part of this precipitate dissolves on the addition of dilute sulphuric acid, the insoluble portion being probably the coloring matter of the bark, for if a solution of tannic acid be used instead of the fluid extract of cinchona as a precipitating agent, a pure precipitate forms, which entirely and easily dissolves on the addition of the dilute sulphuric acid. It follows, therefore, that decoctions, infusions, and tinctures containing tannic acid should act in the same manner. The effect, however, produced by these preparations is very small compared with the fluid extract of cinchona. Antipyrin is not precipitated by solutions of the alkaloids, quinine, cinchonine, or cinchonidine. Therefore, it can be prescribed in a mixture containing sulphate of quinine and dilute sulphuric acid. When strong solutions of chloral hydrate and antipyrin are mixed a white precipitate is formed, which soon becomes resolved into globules of oily-looking liquid, which sink to the bottom in a distinct layer. This layer, in the course of some hours, changes into a crystalline mass, from which the clear upper liquid can be drained off. These crystals are soluble in water, but considerably less so than either antipyrin or chloral hydrate. They have a distinct taste of chloral without its pungency, and they are not so bitter as antipyrin. This precipitation does not occur in dilute solutions, and it is possible to mix a solution containing sixty grains of antipyrin to the fluidounce with one containing the same proportion of chloral hydrate without any precipitate being immediately formed, although in a few hours small crystals begin to appear. A solution containing fifteen grains each of antipyrin and chloral hydrate to the fluidounce appears to be a permanent one, for at the end of a week there is no appearance of crystalline matter. Clinical experience alone can determine whether mixtures of these two bodies possess any therapeutic properties different from those of the constituents. In prescribing them together, it is to be borne in mind that the solutions must be dilute.—*British Medical Journal*, November 16, 1889.

Treatment of Albuminuria and Eclampsia of Pregnancy.—DR. E. P. HURD writes upon the treatment of albuminuria in pregnancy, and its complications, thus: The treatment of puerperal eclampsia includes the prophylactic treatment and the treatment of the convulsive seizures. Many pregnant women have albuminuria and nephritis, and go to their full term without convulsions In other cases there are early warnings that there is danger ahead. Among the symptoms of renal insufficiency are headache, drowsiness, tinnitus aurium, perhaps more or less dimness of vision, or blindness of one or both eyes, dizziness, dyspnœa, especially on exertion, nausea, and vomiting; the urine is scanty and loaded with albumin, while the percentage of urea is not more than one-half or one-fourth the normal.

Here the duty is plain. The patient must refrain from work, be put on a diet of milk, with or without Vichy water, and fruits, with a minimum of animal food. Saline diuretics, as cream of tartar or acetate of potassium, may be prescribed, and tincture of chloride of iron in full doses three times a day. Also a full dose of Glauber salts in the morning to promote free elimination by the bowels. It may be expedient to give at bedtime a full dose of fluid extract of jaborandi to produce profuse sweating, or to administer hypodermatically one-eighth of a grain of pilocarpine, or even resort to the wet-pack or hot-bath. If, in spite of these efforts to relieve the engorged kidneys and protect the irritated nerve-centres, the patient becomes worse, and convulsions seem imminent, premature labor should be induced.

When called to treat a woman already in convulsions, if labor has not already commenced, it must be expedited by artificial means under chloroform. If labor is advanced, and the os is dilated or dilatable, the patient must be immediately delivered by the forceps or by version. A ten-grain calomel powder may be placed on the patient's tongue, and, if the vascular tension seems high, sixteen ounces of blood may be taken from the arm. It will seldom be desirable to repeat this venesection. Chloroform should be administered to complete anæsthesia, and the patient should be kept under its influence as long as convulsions threaten. As adjuvant to the chloroform, a full dose of chloral may be given by mouth or by rectum. Possibly, in obstinate cases, a hypodermatic of morphine may be advisable.—*Therapeutic Gazette*, November 15, 1889.

Laveran's Organisms in the Diagnosis of Malaria.—PROFESSOR OSLER thus summarizes his later conclusions

upon the organisms found in the blood of persons suffering from malaria:

First. In the acute forms of malaria there exist, within certain of the red corpuscles, amœboid bodies, usually pigmented, which undergo a definite evolution, increasing in size, gradually filling the entire corpuscles, and which prior to and during the chill, undergo a remarkable segmentation. There are also, in some cases, free pigmented bodies. To the form within the corpuscles, which undergoes changes, the term *plasmodium* has been applied. Occasionally, in acute forms, flagellate bodies are seen free in the blood, presenting from three to eight long, actively moving cilia. According to Councilman, these are much more common in blood withdrawn from the spleen.

Second. In more chronic cases, particularly in the forms of remittent fever, which are so apt to be taken for typhoid, the corpuscles do not so often present the intercellular forms, but there are remarkable ovoid, rounded, and crescented bodies deeply pigmented. These are, in all probability, related to and developed from intercellular forms. From certain of these, particularly the ovoid and rounded forms, the flagellate bodies may be seen to develop. Unfortunately for the general practitioner, the determination of the inter-cellular forms requires a tolerably high power with good illumination. A one-twelfth immersion lens is preferable, but with care a good eighth is sufficient, and in the chronic cases, with the crescents in the blood, a sixth suffices. It is important to have the finger-tip, from which the blood is drawn, thoroughly cleansed, and it is best to take a very small drop of blood, so as to have the layer uniformly thinly spread out with the corpuscles isolated, not in rouleaux. —*Johns Hopkins Hospital Bulletin*, December, 1889.

Influenza.—A writer in the *Internationale klinische Rundschau*, December 8, 1889, who has studied the recent epidemic of influenza at St. Petersburg, classifies the varieties of the disease as follows:

1. The nervous form, in which neuralgic pain, often simulating pleurisy, etc., is a prominent symptom. The mucous membrane of the gastro-intestinal and respiratory tracts are normal. This form is very common, and in the beginning is frequently mistaken for typhoid fever.

2. The form characterized by catarrh of the respiratory tract. Bronchitis, coryza and conjunctivitis develop with fever, and frequently continue for some days after the fever has disappeared.

3. The gastric form, in which there is a catarrh of the gastro-intestinal tract, often with severe vomiting, which lasts about two days.

Other symptoms occasionally present are herpes of the lips, nose or eyelids, erythema, roseola, and urticaria. More serious complications, fortunately very rare, are meningeal irritation and pneumonia. The latter is the cause of death in the few fatal cases.

Besides these well-marked varieties there are many others which run a slight course or are abortive.

Convalescence is usually rapid, many patients feeling quite well within one day after the temperature has fallen to normal. With others the catarrhal or nervous symptoms continue a few days longer. Relapses have been observed occurring between the fifth and seventh day of convalescence, ushered in, as is the primary attack, with a chill followed by fever.

In treatment the most useful drugs are quinine, antifebrin, antipyrin, salicylate of sodium, and diaphoretics.

Œsophagotomy with Pleurotomy. — DR. FISCHER, of Hanover, in the *Medicinische-chirurgische Rundschau*, December 1, 1889, reports an interesting case in which a small piece of bone lodged in the œsophagus and finally ulcerated its way into the pleural cavity. Two weeks after the bone had been swallowed, the patient, a man of fifty years, began to suffer from difficult deglutition, offensive expectoration, and a diffuse painful swelling on the left side and somewhat below the thyroid cartilage. Fischer opened the œsophagus and nourished the patient through the fistula. Fetid expectoration, however, continued, the left vocal cord became paralyzed, and fever appeared with dulness and crepitant râles over the entire left chest. Puncture in the ninth intercostal space was followed by a discharge of thick, offensive pus. Free drainage of the pleural cavity was secured by resection of a rib, but death followed from collapse. The foreign body was not found.

Prescription for the Expulsion of Tapeworms.—The following is recommended by the *Deutsche med. Wochenschrift* as an efficient tæniacide:

℞.—Croton oil . . . . 1 drop.
Chloroform . . . . 1 drachm.
Glycerin . . . . 1¼ ounces.—M.

One-half of this should be taken in the morning on an empty stomach; half an hour later, the remainder. The patient's diet should have been light on the previous day.

Antiseptic Treatment of Puerperal Eclampsia.—*L'Abeille Médicale* of December 2, 1889, details the following treatment for this affection:

Preventive treatment:

1. A milk diet and the prevention of the formation of poisons in the intestinal canal by the use of the following prescription, one powder of which is to be given every six hours:

℞.—Naphthalin, Sugar, Salicylate of bismuth . . āā 30 grains.—M.
To be made into eight powders.

2. Administer on the third or fourth day a wineglass of some purgative water, or two teaspoonfuls of sulphate of soda or magnesia in a little water.

3. Favor the action of the skin and kidneys by warm baths twice a week.

Curative treatment:

1. Quiet and absolute rest.

2. Bleeding, from one to many ounces.

3. Give by the stomach a dessertspoonful of the following mixture:

℞.—Chloral . . . . . 6 drachms.
Bromide of soda . . . 6 "
Distilled water . . . 4 ounces.—M.

If the convulsions continue, push the chloral and use chloroform inhalations to the point of anæsthesia.

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SATURDAY, DECEMBER 28, 1889.

THE RESUSCITATION OF PERSONS WHO HAVE STOPPED BREATHING.

WITH the advent of the production of artificial anæsthesia by the use of certain chemical compounds the importance of this subject necessarily became enormously increased, and no one can doubt but that the majority of cases of arrested respiration depend for their exciting cause upon some such agency. It is of the greatest importance that a clear idea of the necessities of the case be before the physician under such circumstances, and that his action be one of rapidity and clearness so far as the ultimate result is concerned. By some curious fallacy of teaching the greater part of the profession have been taught to faradize the diaphragm into contraction with the rapidly interrupted current by the application of one pole over the phrenic nerve in the neck and the other over the abdomen. It requires but little thought to show that such a method is ludicrous in the extreme, for by using such a current on any muscle we produce a condition of spasmodic contraction or tetanus. Every one knows that the diaphragm relaxed by paralysis or contracted by spasm, so long as it is immovable, is equally harmful to the patient. If any current is to be employed, let it be that which is slowly interrupted and which will alternately contract and relax this important respiratory muscle. There can be little doubt but that the rapidly interrupted current has caused persons to renew their respiratory movements, but in these cases the result has been dependent almost certainly upon the reflex excitability of the cells in the spinal cord and medulla rather than on action upon the phrenic nerve. If such an action is required, let the poles be swept over the body so as to cause peripheral irritation.

The absurdity of the application of the rapidly interrupted current to the phrenic is not alone dependent upon the points we have named. It has been proved by careful observation (*University Medical Magazine*, November, 1889) that the application of the electrode over the phrenic nerve in the neck will cause cardiac arrest through diffusion of the current to the vagus nerve, and Griswold reached conclusions of an identical character in the year 1885.

If electricity is used, it should be employed solely as a peripheral irritant, with the object of arousing the patient, as would a dash of cold water.

The question at once arises as to what is the best thing to do under such circumstances. If the arrest has occurred when the patient is under chloroform, his head should be lowered and the feet raised, almost perpendicularly. The neck should not be extended but held in the normal position so that the chin is somewhat shot forward and at a right angle to the body line. If the neck be extended the glottis does not open as well as when the position named is assumed. While one assistant supports the head another should use artificial respiration by Sylvester's method, and it will then be readily seen that there is an increased volume of air passing in and out of the chest. The drawing forward of the tongue is not so important as is imagined, unless it is turned with its tip toward the glottis. The use of ammonia as a rapidly acting respiratory and cardiac stimulant, when given intravenously into the leg, may be resorted to, and dashes of cold and hot water should be employed, not only for their excitation of the peripheral nerves, but also for the purpose of keeping the bodily temperature from rising above or falling below the normal line, the latter danger being the most pressing, of course. The hypodermatic injection of ether is a ridiculous therapeutic attempt, for if the system and respiratory centres are so depressed by the ether taken into the blood through the lungs as to have their functions in abeyance, why should we add still greater depression by injecting more of the

same drug. Let everything that is done be born of sense and thoughtfulness of the exact action and result desired, and let nothing be done simply because some other person has done it, great though he may be in the practice of the healing art. Measures for the relief of persons suffering from any malady depend not upon empirical laws, but upon the good common-sense of the physician in charge, even if the measure is a most revolutionary one in character. The sooner this is realized the sooner will better results be attained in the practice of physic, and the more thoroughly will disease and all its concomitant states be combated.

CORRESPONDENCE.

NEW YORK.

To the Editor of THE MEDICAL NEWS,

SIR: At the last meeting of the New York County Medical Association, Dr. von Donhoff, the surgeon who came to this city a few months ago from Louisville, Ky., threw a bombshell, as it were, into the camp of our New York surgeons, who have of late become so enthusiastic over the McBurney operation for the radical cure of hernia, by the declaration that the latter was neither a safe nor a perfect operation. The occasion of this sensation was the exhibition by Dr. T. H. Manley of a patient seventy-three years of age upon whom he had recently performed the McBurney operation on both sides, with the result, thus far at least, of complete success; and in his remarks upon the case Dr. Manley spoke particularly of the applicability of this procedure to all kinds of patients, whether old or young, provided no organic disease was present.

In defence of his assertion Dr. von Donhoff stated that since he had come to New York he had had the opportunity of seeing a considerable number of these operations, particularly at the Roosevelt Hospital, and that he had examined the results with special care. These results he considered anything but satisfactory, and as to the applicability of the operation to all subjects, he said that he had noticed some of the worst results in young persons of more or less robust habit. The most unfortunate case of all that he had observed was one in which the McBurney operation was performed by Dr. S. T. Armstrong, a most careful and accomplished surgeon. The success of the operation when he first saw the patient, perhaps ten or twelve weeks ago, was apparently very brilliant. But, notwithstanding the fact that the man was able to perform all sorts of contortions without inconvenience or disturbance of the parts, Dr. von Donhoff made the remark that the essential character of the operation was based on facts which would annihilate it as a scientific procedure. And in this instance, at least, his prognostication had been verified; for at the present time the condition of the patient was such that he was totally unable to wear a truss, while any operation that could be undertaken for the closure of the opening would necessarily have to be of so extensive a character that it seemed hardly likely that the man would submit to the incident risk.

Dr. von Donhoff further said that some years ago he had reported thirty-four cases of hernia operated on by a method of his own, in all of which the conditions recurred. The want of success, he was confident, was due to the fact that the same principle was involved as in the McBurney operation; for it was an indisputable dogma that it is impracticable and impossible to secure a union of structures which are not histologically analogous, and the failure of such attempts will be immediate or not according to the special conditions met with in different cases.

Of course, Dr. von Donhoff's strictures drew a spirited rejoinder from Dr. Manley, who had done the McBurney operation fifteen times, thus far with complete success: and it was learned with satisfaction that Dr. von Donhoff proposes at no distant date to read a paper himself on the radical cure of hernia before the Association. This will certainly prove an occasion of unusual interest, and there can be no question that Dr. McBurney and his followers will be on hand and in full force to defend their position with facts as well as arguments.

At the same meeting Dr. Manley also presented a young man who had been thrown down and run over in the street by a wagon, both wheels of which passed over his neck. In consequence of the injury, violent inflammation of the larynx and the adjacent structures resulted, which was followed by increasing difficulty of respiration. Various topical applications having failed to relieve the dyspnœa, Dr. Manley, fearing that at any moment fatal spasm might occur, (as he had seen in another similar case), at first attempted intubation by O'Dwyer's method, but, unfortunately, the only set of tubes at the hospital was for a child, and it was found impossible to secure retention of even the largest of them. In the meanwhile the patient's sufferings and struggles were constantly increasing, and tracheotomy was performed without further delay, with the result of saving the man's life. Under such circumstances, when the patient is strangling to death, Dr. Manley said he knew of no more trying operation in surgery. Under the administration of ether the respiration grew weaker and weaker, and it was necessary to operate very rapidly. Before the tracheotomy tube could be inserted the patient ceased to breathe altogether; but by blowing into the tube and resorting to artificial respiration death was averted. In commenting on the case, Dr. Manley said that he believed that trachotomy might probably have been avoided if an O'Dwyer tube of the size for adults had been obtainable, and expressed the opinion that every hospital ought to be supplied with full sets of these instruments for such cases of emergency.

In the course of his anniversary address before the New York Academy of Medicine, on "The Relation of Medicine to some of the Questions of the Day," Dr. William M. Polk took up the subject of socialism, which, he said, was rapidly becoming a question of classes in this country. The same human inspiration was at the bottom of the present social agitation, he believed, as underlay the French Revolution, and we have got to see what the outcome would be under the changed conditions. The content of a people is largely dependent

on its physical well-being, and in this country one social order—that which was most widely separated from the class from which social agitation sprang—had the means to compel healthful conditions. Therefore, he held that it was the duty of physicians to speak out plainly to the class which held the surplus wealth in regard to the physical conditions surrounding the working classes. Physical well-being was the result of obedience to natural laws; the demand for knowledge of those laws was constantly growing, and the medical man's duty to society was to satisfy it. "Let us present the facts," he said, "to the class which commands the surplus capital. Let us show them that the viciousness and laziness from which socialism draws its strength are the result of bad physical conditions which those surrounded by them are unable to change. We shall then have taught the means of self-preservation; we shall have taught man his duty toward God, and toward that temple of God which was created when he entered the world."

Mayor Grant recently re-appointed the widow of the late Dr. Cornelius R. Agnew, the distinguished ophthalmologist, a member of the Board of Education; and in the place of Miss Dodge, daughter of the late William E. Dodge, whose term had also expired, appointed Mrs. Clara M. Williams, who has the advantage of having herself gone through all the grades of the public schools and having been graduated from the Normal College. Considerable opposition was manifested to the re-appointment of the lady commissioners, and, in consequence, two large petitions were forwarded to the Mayor, urging him to take this action. One was signed by Bishop Potter, the Rev. Dr. Morgan Dix, ex-President Cleveland, Vice-President L. P. Morton, Rufus Choate, and other prominent citizens, and the other by a long list of physicians, who were convinced that such action would be for the best hygienic interests of the schools. In this connection it may be stated that at the last annual meeting of the Medical Society of the County of New York, held during the past autumn, the Committee on Hygiene made an elaborate report on the overcrowding of the public schools, which has excited considerable interest.

It states that five years ago the committee submitted a report on the same subject, and that this year a more thorough effort has been made to detect possible defects. After giving the statistics in reference to attendance, seating capacity, the refusal to admit pupils, etc., the report goes on to say that the facts presented make it plain that the school administration must be watchful and efficient to be safe. The necessity of vigilance is further emphasized by the result of the examination of the water-closets at the schools, which are said to be well constructed, but badly kept; also by the reports from various quarters of children being kept in school when suffering from whooping-cough and other infectious diseases; indicating that there have been serious abuses in this direction. The teachers' interest in keeping their classes full and up to the standard, it is pointed out, has been mainly responsible for the attendance of children who should not have been permitted to mingle with the other pupils. In conclusion, the committee recommend that:

First. The system of marking and awards for regular attendance of school children should be so adjusted as to impose no avoidable penalty for absence on account of illness.

Second. The recess at noon should last at least one hour and one-half. No scholar should be detained for any reason during the noon recess.

Third. The salaries of principals and teachers should be less directly dependent on the average attendance than it now is.

Fourth. The regulations which are in force regarding vaccination and contagious diseases among public school children should be extended and rigidly enforced in all day schools, including all private and denominational schools of every description.

At the last meeting of the Section on Laryngology and Rhinology of the Academy of Medicine, Dr. George H. Fox read the report of a case of erythematous lupus of the face and oral cavity; after which a general discussion on lupus of the respiratory mucous membrane took place. On the same evening Dr. H. Holbrook Curtis presented the report of a case of cocaine-habit with remarks on the dangers of the use of cocaine which were based on about two hundred cases which he had collated from various sources. The fact that Dr. Karl Köhler, of Vienna, to whom the discovery of the valuable anæsthetic properties of cocaine is due, was present on this occasion, lent an additional interest to the subject, and in the discussion he stated that he made it a rule never to prescribe the drug in his practice. "Whenever I use it," he said, "I administer it myself, and then the patient cannot procure more of it by simply having a prescription refilled." He also stated that, as a rule, he never used a solution stronger than five per cent., since he found the results obtained from it quite as good as from a stronger solution. It only required a little more time to act. In subcutaneous injections even a weaker solution should be employed, and he had found a two per cent. solution quite effective.

NEWS ITEMS.

Statistics of Leprosy in the United States.—With reference to the increase of leprosy in this country the following request has been received: In view of the general impression that leprosy is spreading in this country, it is desirable, in the interest of the public health, to obtain accurate information upon this point. The undersigned is engaged in collecting statistics of all cases of leprosy in the United States, and he would ask members of the profession to aid in this work by sending a report of any case or cases under their observation, or coming within their knowledge. Please give location, age, sex, and nationality of the patient, and the form of the disease—tubercular or anæsthetic; also any facts bearing upon the question of contagion and heredity. Address, DR. PRINCE A. MORROW, *Journal of Cutaneous and Genito-Urinary Diseases*, 66 West Fortieth Street, New York.

Prizes of the Spanish Medico-Chirurgical Academy.—The Spanish Medico-Chirurgical Academy offers prizes for the best essays on the following subjects: 1. Modern Discoveries in Physics applied to Medicine: have they Advanced the Science of Diagnosis? 2. Limits of the Expectant Method and the Therapeutic Value of Hygiene

in Chronic Diseases of the Stomach. Each prize will consist of 250 pesetas ($50), with the title of Corresponding Member of the Academy. Essays may be written in Spanish, Portuguese, French, Italian, English, or German. Each essay must bear a motto, the name and address of the author being sent in a separate sealed envelope. All essays must be in the hands of the Secretary (Montera, 22, *bajo*, Madrid), on or before September 15, 1890.

The Carriage of Infection by Physicians.—With reference to the communication of contagious diseases by physicians, a question that is now being agitated in England, a correspondent of the *British Medical Journal* writes that "although it cannot be denied that it is possible for a medical man under some circumstances to convey infection from one patient to another, the risk of this taking place is, if ordinary precautions be taken, almost *nil*. This is clearly shown by the experience at the London Fever Hospital, where the resident medical officer in the discharge of his duties is constantly passing from the scarlatina department to the departments for measles, typhoid, diphtheria, etc., and yet it has never been found that he transfers these different contagia, although he would be much more likely to do so than an ordinary practitioner, inasmuch as the poison is necessarily more concentrated in a fever ward than in a room where only one patient is treated. The medical attendant is not, as a rule, brought into sufficiently close and prolonged connection with his patient for his clothes to receive any very large amount of the contagion, and a short exposure to the open air is generally sufficient to disinfect him. Nurses, no doubt, whose clothes from prolonged and constant contact with the patient become saturated with the poison, may readily convey infection. The only precautions taken by the physicians to the fever hospital—and a long experience has shown them to be quite sufficient—are to wear a special outer garment and cap in the wards, but even this is not done by the resident medical officer.

"For all ordinary purposes washing the hands in a disinfecting solution and a short exposure to the fresh air will, I am sure, sufficiently disinfect the practitioner, though it is advisable that he should change his coat, and he ought, as far as possible, visit his infectious cases last.

"In the case of smallpox, however, where the poison is present in a liquid form, and may possibly get smeared on the clothes, a change of clothes is necessary."

College Athletics.—There is a tendency in college sports and athletics that is the reverse of commendable. Foot-ball, the bicycle, and the cane-rush have each resulted, of late, in death or serious injury. Some of the players at foot-ball enter a game knowing that the chances are against their being able to participate in a second match, as they expect to be laid up for the rest of the season. It is idle to assert that the players when excited cannot control their energies within the limits of gentlemanly contention. It has been done here formerly, it is done elsewhere now, and it must be done by such professional athletes as ball-players, or they will become unpopular, and there should be no leniency shown to that sort of college athletics which will not courteously obey such rules as have been devised to prevent the maiming and disfigurement of those who engage in the college contests. Those who have been in the habit of contributing to the athletic funds of the collegians will do well to admonish their young friends that what they wish to countenance is not brutality, but a fair and knightly competition. That this point is not too fine-spun is shown by the accounts of two recent foot-ball matches, in which two of the contestants were kicked in the head.

A Balneological Investigation.—Dr. L. Blanc, of Aix-les-Bains, and medical director of the principal sanitarium at that place, has been sent to this country by the French Government for the purpose of investigating the properties of the medicinal mineral springs of this country and the British Provinces.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM DECEMBER 10 TO DECEMBER 16, 1889.

HALL, JOHN D., *Major and Surgeon*—Is granted leave of absence for ten days, to take effect upon being relieved from duty at Fort Niagara, New York.—Par. 11, *S. O. 265, A. G. O., Washington*, December 7, 1889.

By direction of the Secretary of War, EDWARD C. CARTER, *Captain and Assistant Surgeon*, will be relieved from duty at Willett's Point, New York, upon the arrival at that station of Clarence Ewen, Major and Surgeon, and will then proceed to Fort Walla Walla, Washington Territory, and report in person to the commanding officer of that post for duty, reporting also by letter to the commanding general Department of the Columbia.

BALL, R. R., *First Lieutenant and Assistant Surgeon.*—Is relieved from temporary duty at Fort Sill, Indian Territory, and will return to his proper station, Fort Riley, Kansas.—*S. O. 182, Headquarters Department of the Missouri, Fort Leavenworth, Kansas*, December 12, 1889.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE TWO WEEKS ENDING DECEMBER 21, 1889.

ROSS, J. W., *Surgeon.*—Detached from the Navy Yard, Pensacola, Florida, and placed on waiting orders.

KITE, I. W., *Assistant Surgeon.*—Detached from the Naval Hospital, Philadelphia, Pa., and ordered to the Navy Yard, Pensacola, Florida.

ROGERS, B. F., *Surgeon.*— Ordered to special duty at Norfolk, Virginia.

LEACH, PHILIP, *Passed Assistant Surgeon.*—Ordered to duty at the Naval Academy, Annapolis, Maryland.

PICKERELL, GEORGE MCC., *Assistant Surgeon.*—Ordered to the Navy Yard, Washington, D. D., for temporary duty.

PROMOTIONS.

KITE, I. W., *Assistant Surgeon.*—Promoted to be a Passed Assistant Surgeon.

STONE, E. P., *Assistant Surgeon.*—Promoted to be a Passed Assistant Surgeon.

NORTON, O. D., *Assistant Surgeon.*—Promoted to be a Passed Assistant Surgeon.

HENRY, CHARES P., *Assistant Surgeon.*—Placed on the Retired List.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

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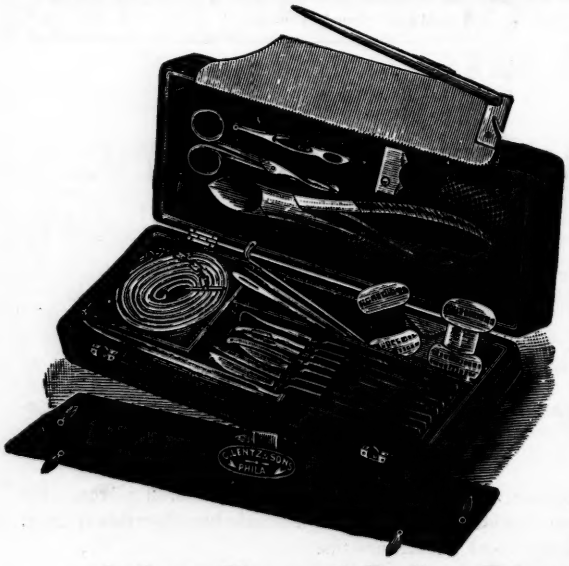

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